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PROPERTY OF
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3924 MEADE St.
DENVER, COLORADO

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SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 6 IN SET 263

Crosley Models G-21TOBH, G-21TOBU, G-21TOMH, G-21TOMU, G-21TOWH, H-21COBH, H-21COBU, H-21COMH, H-21COMU, H-21COSBH, H-21COSH, H-21COWH, H-21COWU, H-21HCBH, H-21HCBU, H-21HCWH, H-21HCWU, H-21TOBH, H-21TOMH and H-21TOWH (Ch. 431, 431-2) were covered in Photofact Folder 6 - Set 263.

Models H-21TOBU, H-21TOMU and H-21TOWU (Ch. 431) are added, along with late production changes, with the publication of this bulletin.

CODE X

TO IMPROVE PICTURE QUALITY

A 910 microhenry peaking coil (part #159210-1) is added from R35 to ground.

L13 is changed to part #159215-1.

R39 is decreased from 5600Ω to 4700Ω.

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TO IMPROVE INTERLACE AND VERTICAL STABILITY

T1, vertical oscillator transformer, is rewired into the cathode circuit of V10A. A partial schematic showing the new circuit is given on the reverse side.

C55 is omitted.

A 560MMF @ 500V disc ceramic capacitor is added from pin 2 of V10A to ground.

C25 is increased from 1000MMF to 5000MMF.

A .1MFD @ 600V molded paper capacitor is added from the junction of R26 and R23 to ground.

CROSLEY CHASSIS 431, 431-2

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 3 IN SET 310

Emerson Model 834-B (Ch. 120270-B) was covered in Photofact Folder 3 - Set 310.

Models 834-A (Ch. 120308-A), 839-B (Ch. 120270-B) and 841-A (Ch. 120291-A) are electrically identical except for the following changes.

Ch. 120291-A

COMPONENT CHANGES

C2 is omitted.

C3 is omitted.

C4 is omitted.

R2 is omitted.

A .05MFD @ 400V capacitor is added from the low end of R1, volume control, to ground.

M1, selenium rectifier, is changed to part #817046.

SP1, speaker, is changed to part #180143.

Ch. 120308-A

COMPONENT CHANGES

C2 is omitted.

M1, selenium rectifier, is changed to part #817046.

EMERSON MODELS 834-A, 839-B, 841-A (Ch. 120270-B, 120291-A, 120308-A)

PRODUCTION CHANGES
BULLETIN 182

PRODUCTION CHANGES
BULLETIN 182

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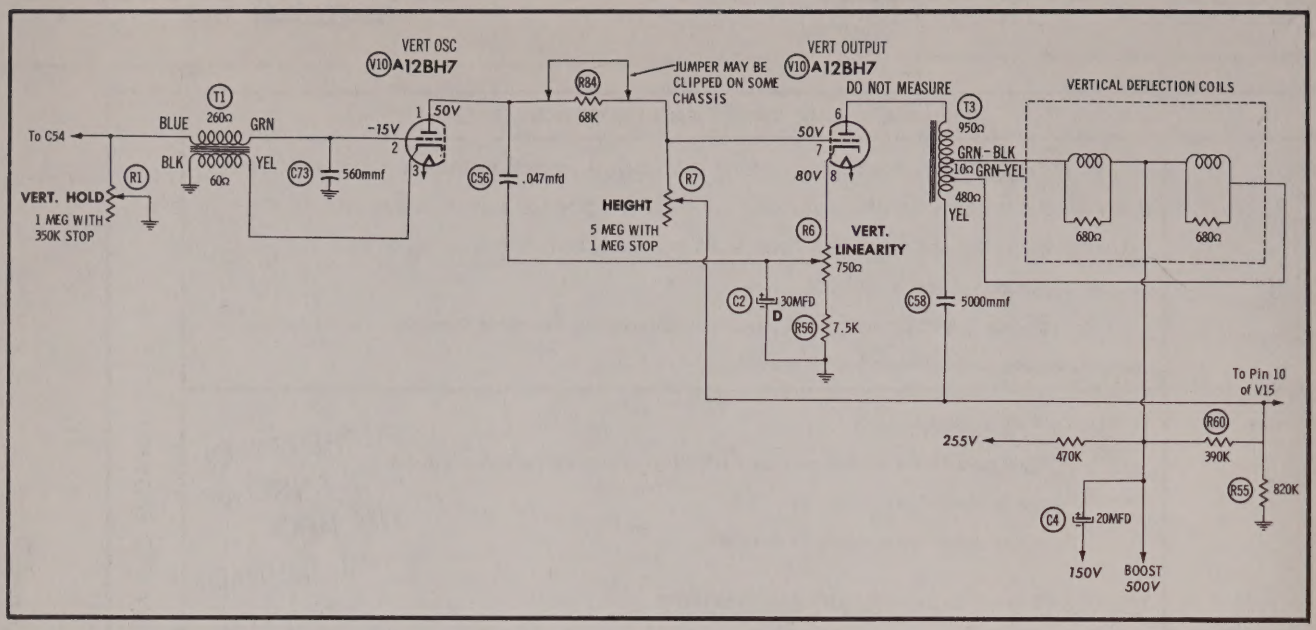

VERT OSC
V10 A12BH7
VERT OUTPUT
V10 A12BH7
JUMPER MAY BE CLIPPED ON SOME CHASSIS
DO NOT MEASURE
VERTICAL DEFLECTION COILS
T1
260Ω
BLUE
GRN
BLK
YEL
60Ω
To C54
R1
VERT. HOLD
1 MEG WITH 350K STOP
C73
560mmf
-15V
1
2
3
50V
R84
68K
C56
.047mfd
HEIGHT
5 MEG WITH 1 MEG STOP
R7
6
7
8
50V
80V
T3
950Ω
GRN-BLK
10Ω GRN-YEL
480Ω
YEL
680Ω
680Ω
R6
VERT. LINEARITY
750Ω
C2
30MFD
D
R56
7.5K
C58
5000mmf
To Pin 10 of V15
255V
470K
R60
390K
R55
820K
C4
20MFD
150V
BOOST 500V

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 17 IN SET 339

ZENITH MODELS Z733G, Z733R, Z733Y (Ch. 7Y03Z)

Zenith Models Y733G, Y733R, Y733Y (Ch. 7Y03) were covered in Photofact Folder 17 - Set 339.

Models Z733G, Z733R, Z733Y (Ch. 7Y03Z) are electrically identical to the models covered except for the following changes.

COMPONENT CHANGES

A 1000MMF feed thru capacitor (part #22-2732) is added between L4 and the junction of R10 and C9.

A 39Ω 1 watt wire-wound resistor is added between pin 4 of V4 and pin 3 of V5.

An iron core filament choke (part #149-171) is added between pin 4 of V1 and pin 4 of V2.

An iron core choke (part #149-171) is added from the ground terminal of the FM antenna terminal board to C2.

C31 is omitted.

A dual 4700MMF capacitor is added between pins 3 and 4 of V1 to ground.

A .047 @ 600V capacitor is added from pin 4 of V7 to ground.

A .01MFD ceramic disc capacitor is added from the bandswitch frame to ground.

NEW FM RF AMP TUBE

V1, FM RF Amp., is changed from a 12BA6 to a 6BJ6. A partial schematic showing the new circuit is given on the reverse side.

SUPPLEMENTAL DATA TO PHOTOFACT FOLDER 13 IN SET 343

TRUETONE MODELS D2684A, D2685A

Truetone Models D2684A and D2685A were covered in Photofact Folder 13 - Set 343.

The following changes in part numbers were made in later production.

NEW PART NUMBERS

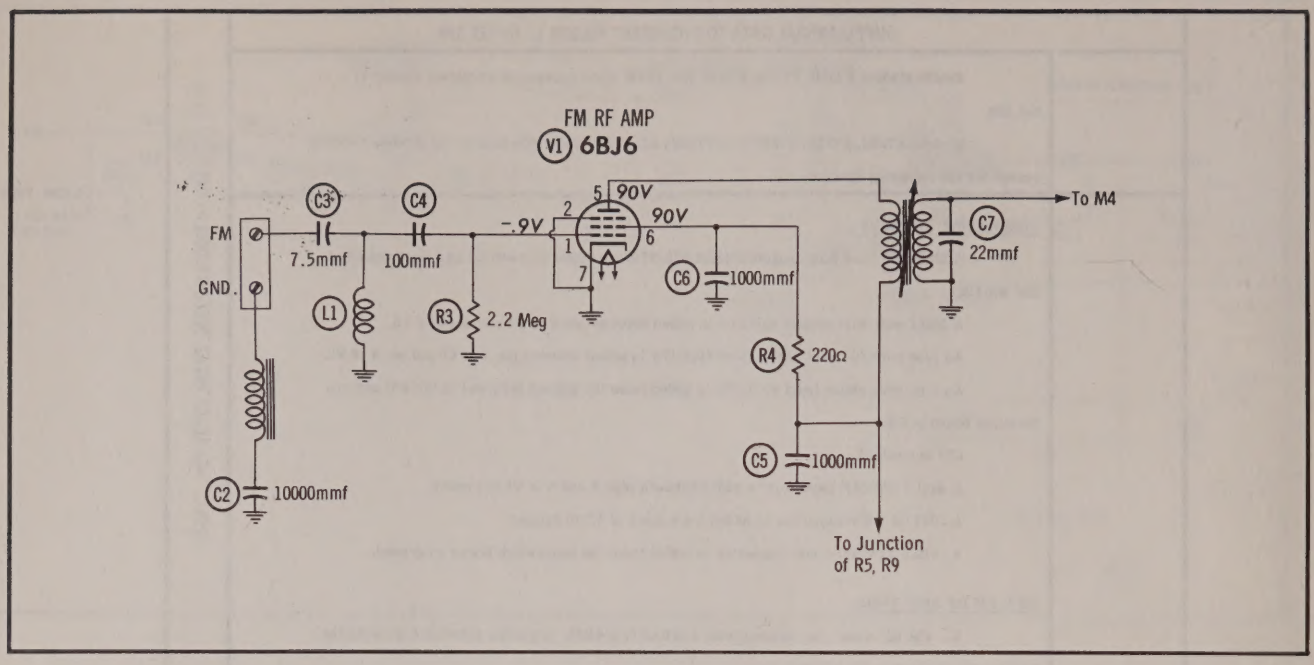
L2, oscillator coil, is changed to part #136-125.

The cabinet is changed to part #212-103.

Strip insert for R1, volume control, is changed to part #215-130.

SP1, speaker, is changed to part #175-115A.

Knobs for the clock are changed to part #207-102.


FM RF AMP
V1 6BJ6
FM
GND
C3
7.5mmf
C4
100mmf
L1
R3
2.2 Meg
-.9V
5
2
1
7
6
90V
90V
C6
1000mmf
R4
220Ω
C5
1000mmf
C2
10000mmf
C7
22mmf
To M4
To Junction
of R5, R9

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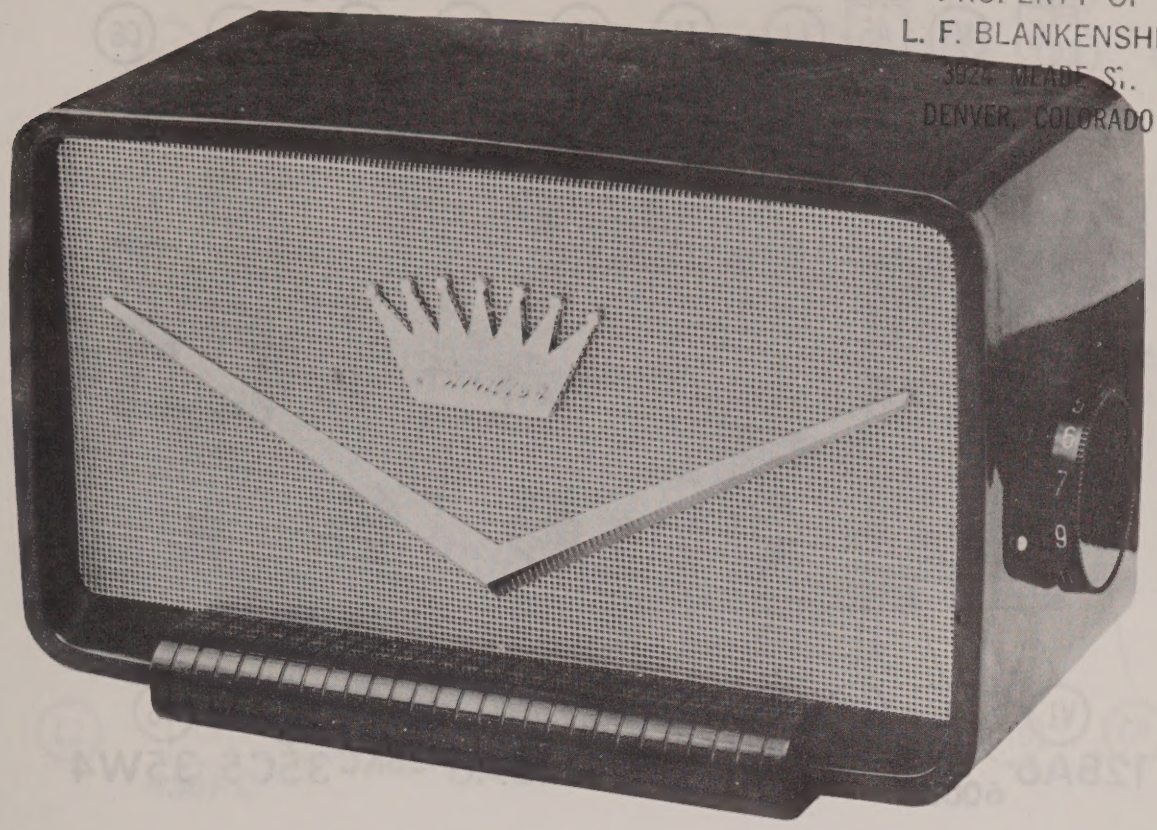

CAVALIER
MODEL 603

TRADE NAME	Cavalier Model 603
MANUFACTURER	Hinners-Galanek Radio Corp., 2514 Broadway, Long Island City 6, New York
TYPE SET	AC-DC Operated AM Receiver
TUBES (Six)	Types 12BA6 RF Amplifier, 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det.-AVC-AF Amp., 35C5 Output, 35W4 Rectifier.
POWER SUPPLY	105-125 Volts AC-DC RATING .24 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540-1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to RF lug on tuning gang. Low side to B-.	456KC (400% Mod.)	Point of non-interference	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD to reduce hum modulation.
2.	"	"	1650KC	Tuning gang fully open.	"	A5	"
3.		Loop	1500KC	Tune to 1500KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	600KC	Tune to 600KC signal.	"	A7	"

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BA6	
V2	Converter	12BE6	
V3	IF Amplifier	12BA6	

ITEM No.	USE	TYPE	NOTES
V4	Det-AVC-AF Amp.	12AT6	
V5	Output	35C5	
V6	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	CAVALIER PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	70	150	(Note 1)	PRS150V5030-20	BBRT53215	TCD498	TDLD-10	FMT-1540	TVA-2460
B	30	150							

Note #1. Some versions may use a 40-40MFD in this application.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	CAVALIER PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	300		156-101	SI300	D6-301	LT6T3	GP-300	UC-533	5GA-T3	
C3	.05	200	152-104	BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C4	.05	200	152-104	BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C5	300		156-101	SI300	D6-301	LT6T3	GP-300	UC-533	5GA-T3	
C6	2000		152-107	BPD-002	DD-202	BYA10D2	ED-02	DC522	5HK-D2	
C7A	5000									
B	250		♦166-109	♦PA-112-2	♦PC-71	♦112TM2	♦1406-02		♦T-4	
C										
C8	10000		158-102	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C9	.05	400	152-109	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C10	.1	400	152-108	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C11	.01	400	152-013	BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	

♦ Items C7A, C7B, C7C, R8A, R8B are combined in one unit. When replacing items separately, C7B and C7C should total 250MMF.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	CAVALIER PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	120-120	ABT-63	A47F4-500K	Q18-133X	UT429	Volume, Tap ⓐ 50K
B	Shaft			AK-3	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

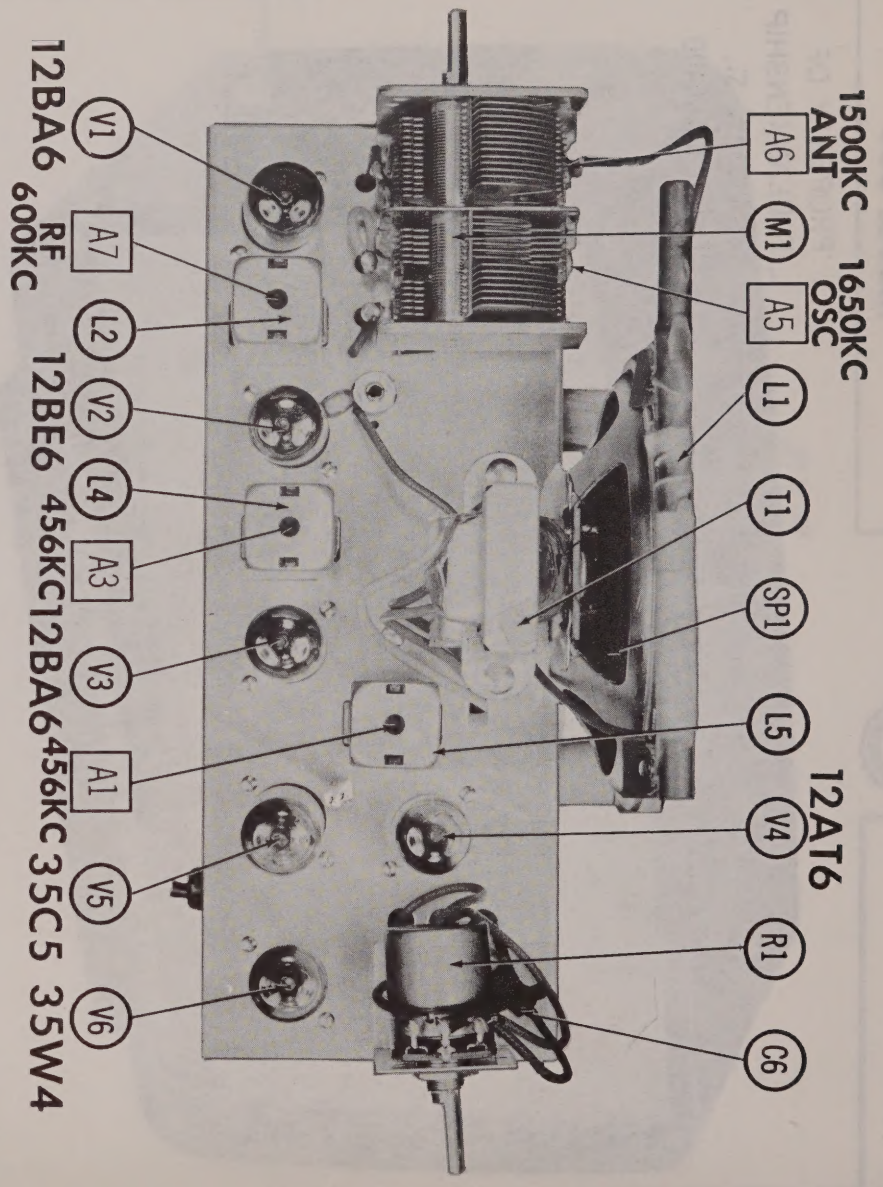
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CAVALIER PART No.	IRC PART No.	
R2	2.2Meg		180-107	BTS-2.2Meg	
R3	47Ω		180-103	BTS-47	
R4	22K			BTS-22K	
R5	390Ω		180-156	BTS-390	Note #1
R6	2.2Meg		180-107	BTS-2.2Meg	
R7	10Meg		180-123	BTS-10Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CAVALIER PART No.	IRC PART No.	
R8A	250K		♦166-109	BTS-270K	
B	500K			BTS-470K	
R9	150Ω		180-111	BTS-150	
R10	1500Ω	1	180-157	BTA-1500	
R11	1800Ω		180-159	BTS-1800	Note #2
R12	10K		180-160	BTS-10K	Note #2

Note #1: Some versions use 470Ω in this application.
Note #2: Not used in some versions.
♦ Items C7A, C7B, C7C, R8A and R8B are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	CAVALIER PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2400Ω	3-4Ω	Part of Spkr. 175-115	HZ1003 ①	A-3031 ①	A-3330 ①	24S50A ①	S-16X ①	① Bend one tab & solder to mounting bracket.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	CAVALIER PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	175-115 ①	4A07	① Includes T1

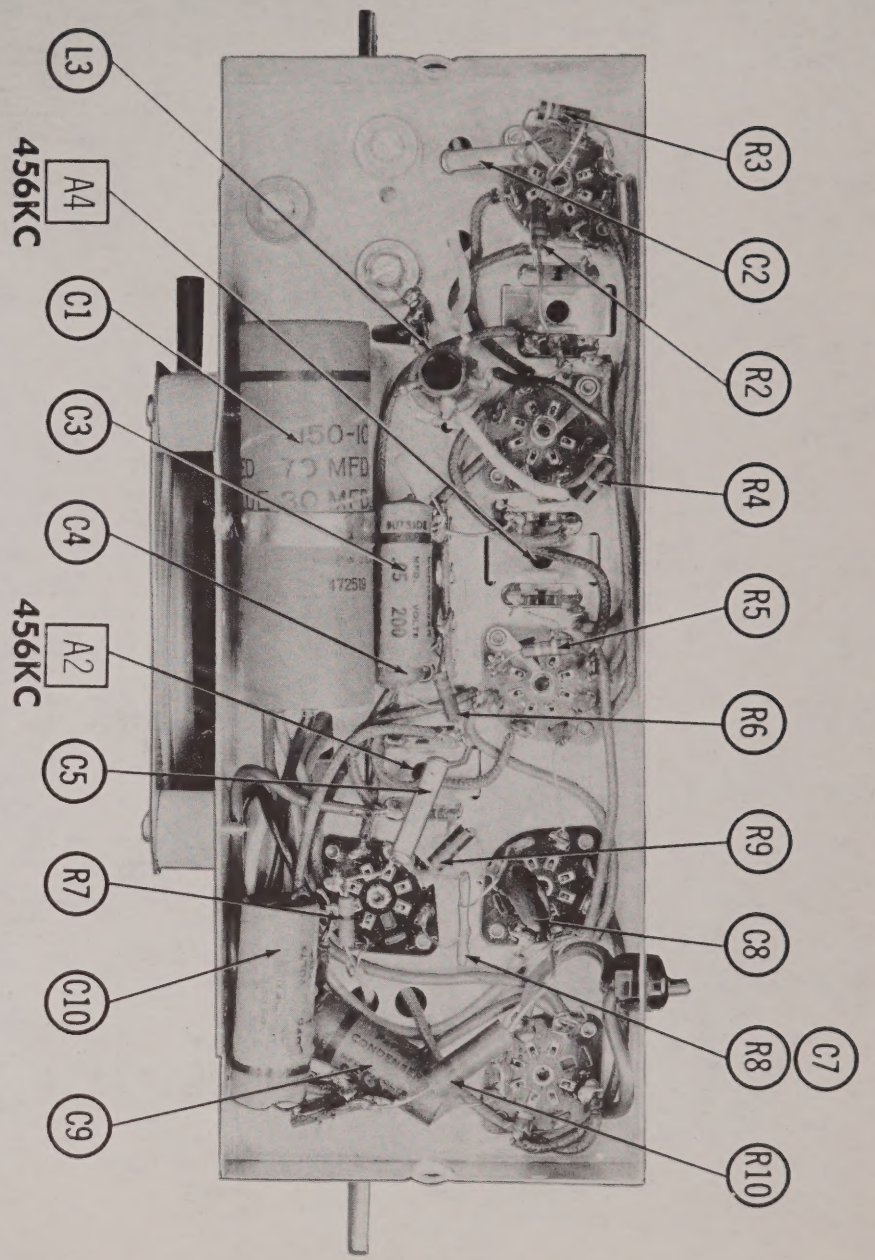
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	CAVALIER PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	.8		132-113				
L2	RF Coil	115	11Ω *	130-113				*Tapped @ 7.5Ω
L3	Osc. Coil	.9	7.5	136-117	14-1073 ■		69-OSC	■ Use Leads For Mtg.
L4	Input IF	18	18	130-102	16-6758	BC-352	12-C1	
L5	Output IF	10	10	130-107	16-6758	BC-353	12-C2	

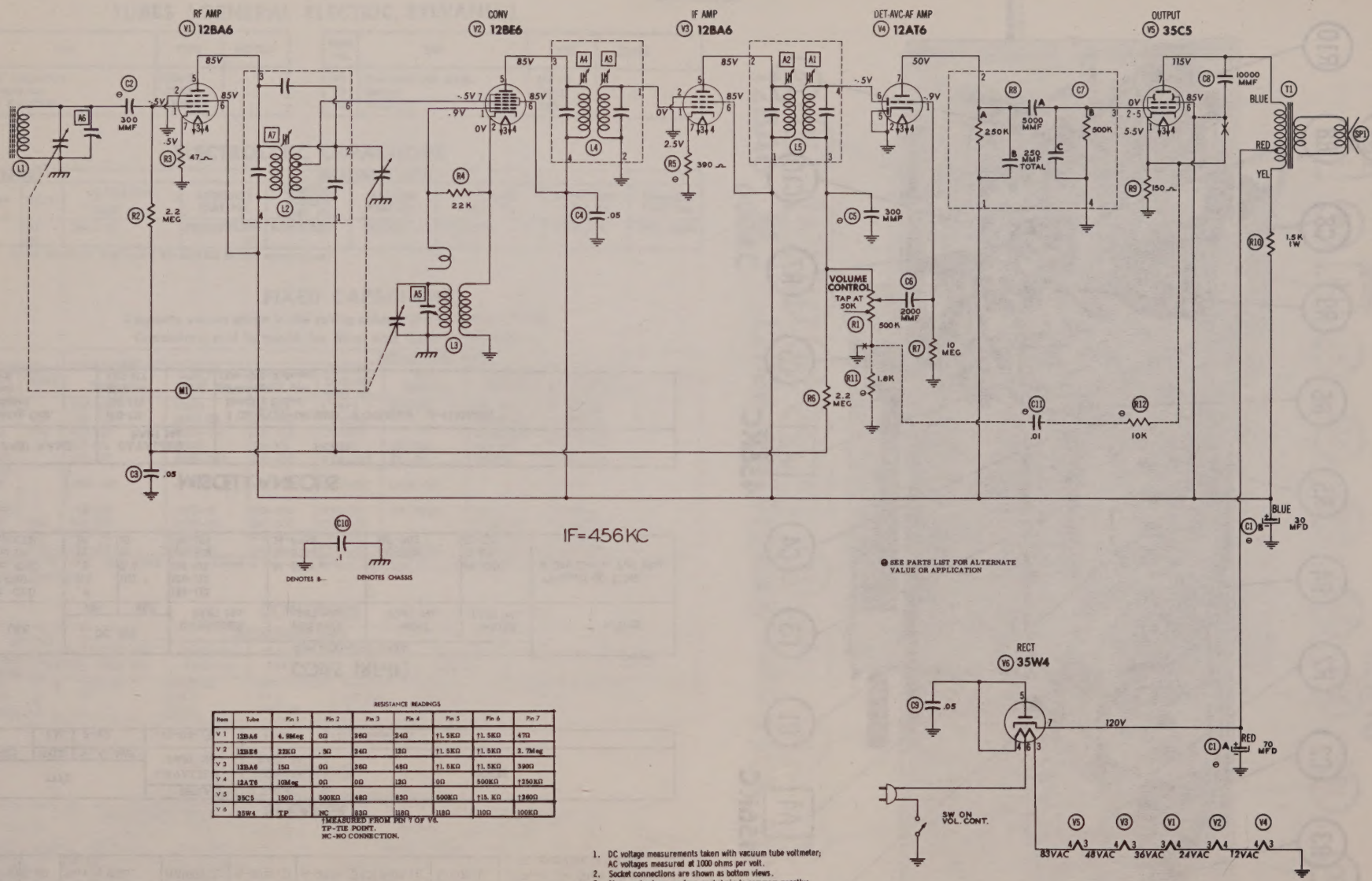
MISCELLANEOUS

ITEM No.	PART NAME	CAVALIER PART No.	NOTES
M1	Tuning Cap.	160-111	3 Gang (35-480MMF, 9-205MMF, 18-130MMF)
	Cabinet	210-115	Specify Color
	Knob	220-116	Tuning
	Knob	220-117	On-Off-Volume

CHASSIS—BOTTOM VIEW



CAVALIER MODEL 603



RESISTANCE READINGS

Item	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V 1	12BA6	4.8Meg	0Ω	36Ω	24Ω	†1.5KΩ	†1.5KΩ	47Ω
V 2	12BE6	22KΩ	.5Ω	24Ω	12Ω	†1.5KΩ	†1.5KΩ	3.7Meg
V 3	12BA6	15Ω	0Ω	36Ω	48Ω	†1.5KΩ	†1.5KΩ	390Ω
V 4	12AT6	10Meg	0Ω	0Ω	12Ω	0Ω	500KΩ	†250KΩ
V 5	35C5	150Ω	500KΩ	48Ω	83Ω	500KΩ	†15.KΩ	†240Ω
V 6	35W4	TP	NC	83Ω	118Ω	118Ω	110Ω	100KΩ

†MEASURED FROM PIN 7 OF V4.
TP-TIE POINT.
NC-NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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DENVER, COLORADO

CORONADO MODEL TV1-9399A

TRADE NAME	Coronado Models TV1-9399A, TV1-9400A
SUPPLIER	Gambles-Skogmo, Inc., 15 North 8th Street, Minneapolis, Minn.
TYPE SET	Television Receiver
TUBES	Fifteen
POWER SUPPLY	105-115 Volts AC, 60 cycle RATING 155 Watts, 1.4 Amp@ 115 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 46.75MC, Sound IF 42.25MC (Intercarrier)

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CORONADO MODELS
TV1-9399A, TV1-9400A

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PHOTOFACT* Folder
*TRADE MARK

CORONADO MODELS TV1-9399A, TV1-9400A

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3924 MEADE ST.
DENVER, COLORADO

DISASSEMBLY INSTRUCTIONS

CABINET REMOVAL

1. Remove 7 push on type control knobs.
2. Remove 4 metal screws, remove tuner antenna leads, remove rear cover.
3. Place the receiver face down on a pad.
4. Remove 2 metal screws holding AC interlock bracket.
5. Remove 2 speaker leads.
6. Remove 2 metal screws at front of cabinet, one on top, one on bottom.
7. Remove 4 chassis screws from sides of cabinet.
8. Lift cabinet up to remove.
9. Remove 2 speaker bolts, remove speaker.

MODEL TV1-9399A

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS

Care should be exercised when connecting test equipment or physcially contacting chassis.

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustment of the VHF Tuner Oscillator it is necessary

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF Tuner Oscillator circuit may be accomplished by removal of the Channel Selector and Fine Tuning knobs. The adjustments are accessible, one at a time, through the small hole in the cabinet to the right of the channel selector shaft.

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning it is necessary to remove the chassis. (See disassembly instructions)

FOCUS ADJUSTMENT

Adjust the ion trap for best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

For adjustment of the horizontal oscillator it is necessary to remove the rear cover and supply power to the chassis. Adjustment is located on top of the chassis. Set the horiz. hold control to the center of its range and adjust the horiz. frequency slug (B1) until the picture synchronizes horizontally.

SOUND IF DETECTOR BUZZ ADJUSTMENT

To eliminate the sound IF detector buzz, adjust the buzz control located on top of the chassis for maximum sound with minimum buzz.

FUSES

A 9.1Ω fusible resistor R83 is used for LV Power Supply protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

ANTI-PIN CUSHION CORRECTION

Reduce the picture size so that the sides of the raster are visible, and position the magnets so that the sides are staright.

CORONADO MODELS
TV1-9399A, TV1-9400A

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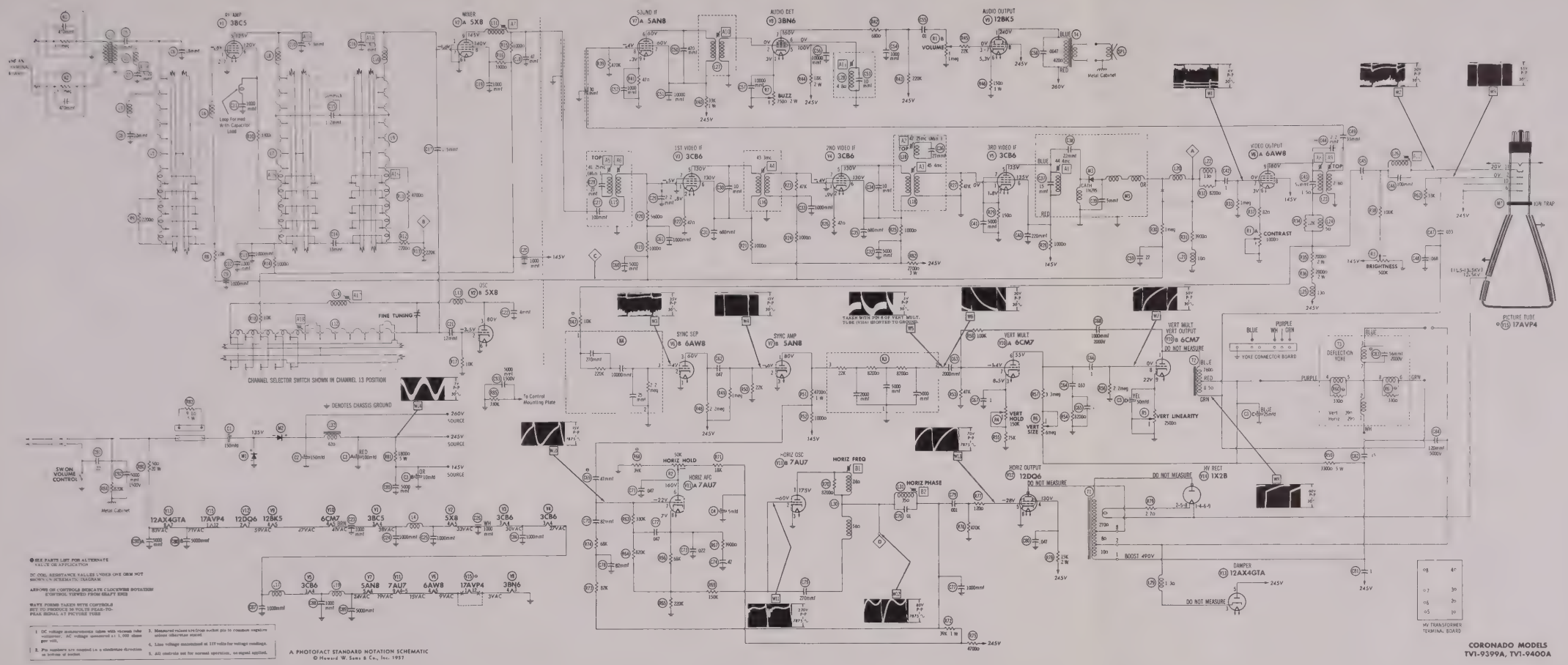
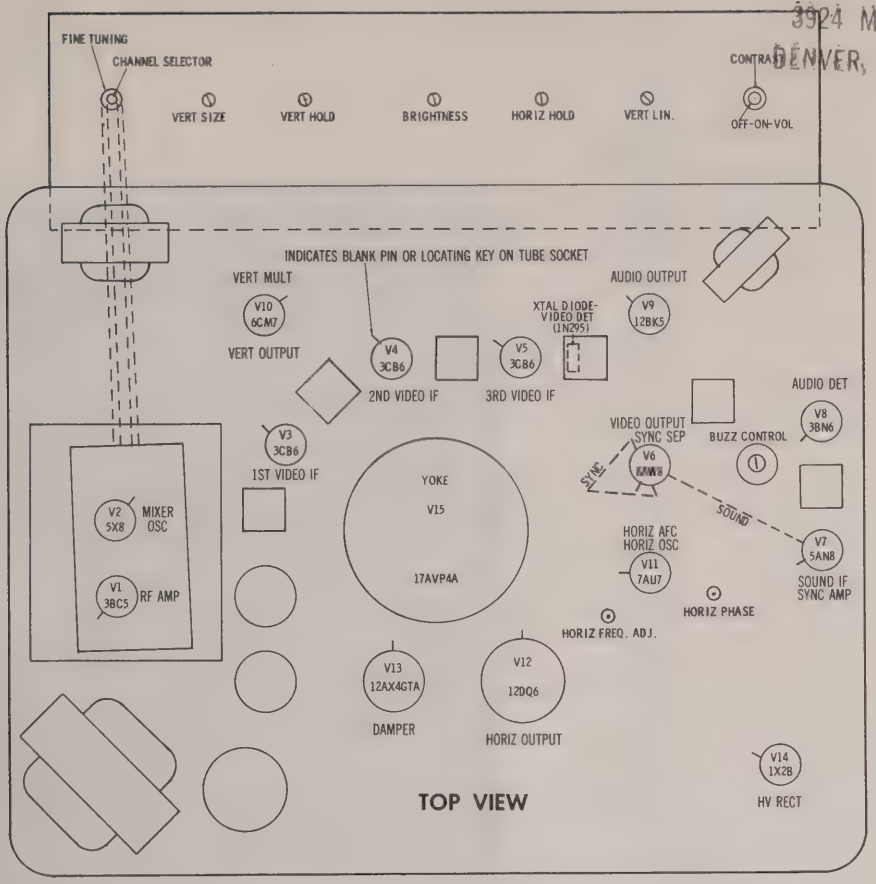


CORONADO MODELS
TV1-9399A, TV1-9400A

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

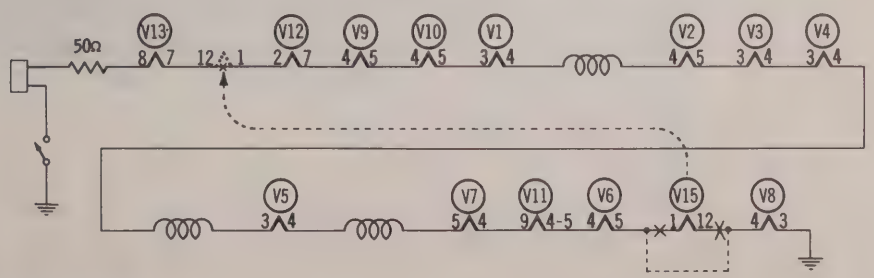
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R83), Rectifier (M1, M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, V5, Diode (M3), V6**
No pic, no sound, has snow - **V1, V2, V3**
No pic, has sound, has raster - **V6, V15**
Has pic, no sound - **V7, V8, V9**

SYNC FAILURE
No vert. sync - **V6, V7, V10**
No horiz. sync - **V6, V7, V11**
No vert. or horiz. sync - **V6, V7**

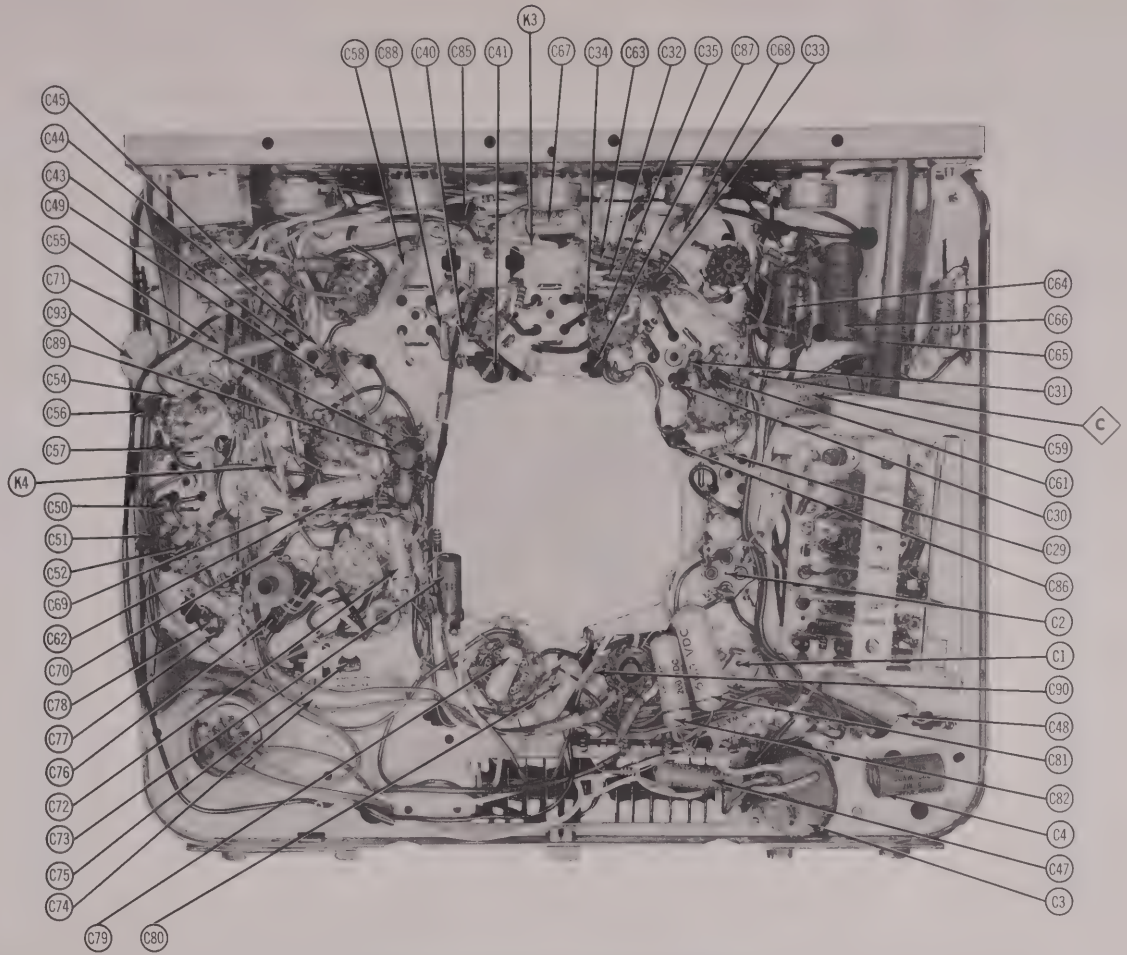
SWEEP FAILURE
No raster, has sound - **V11, V12, V13, V14, V15**
No vertical deflection - **V10**
Poor vert. linearity or foldover - **V10**
Poor horiz. linearity or foldover - **V11, V12, V13**
Narrow picture - **V11, V12, V13, M1, M2**
Vert. off freq. - **V6, V7, V10**
Horiz. off freq. - **V6, V7, V11**

Since this receiver employs tubes used in a series filament network, an open filament on any of the tubes in the series will cause the set to be inoperative. (See circuit diagram below)

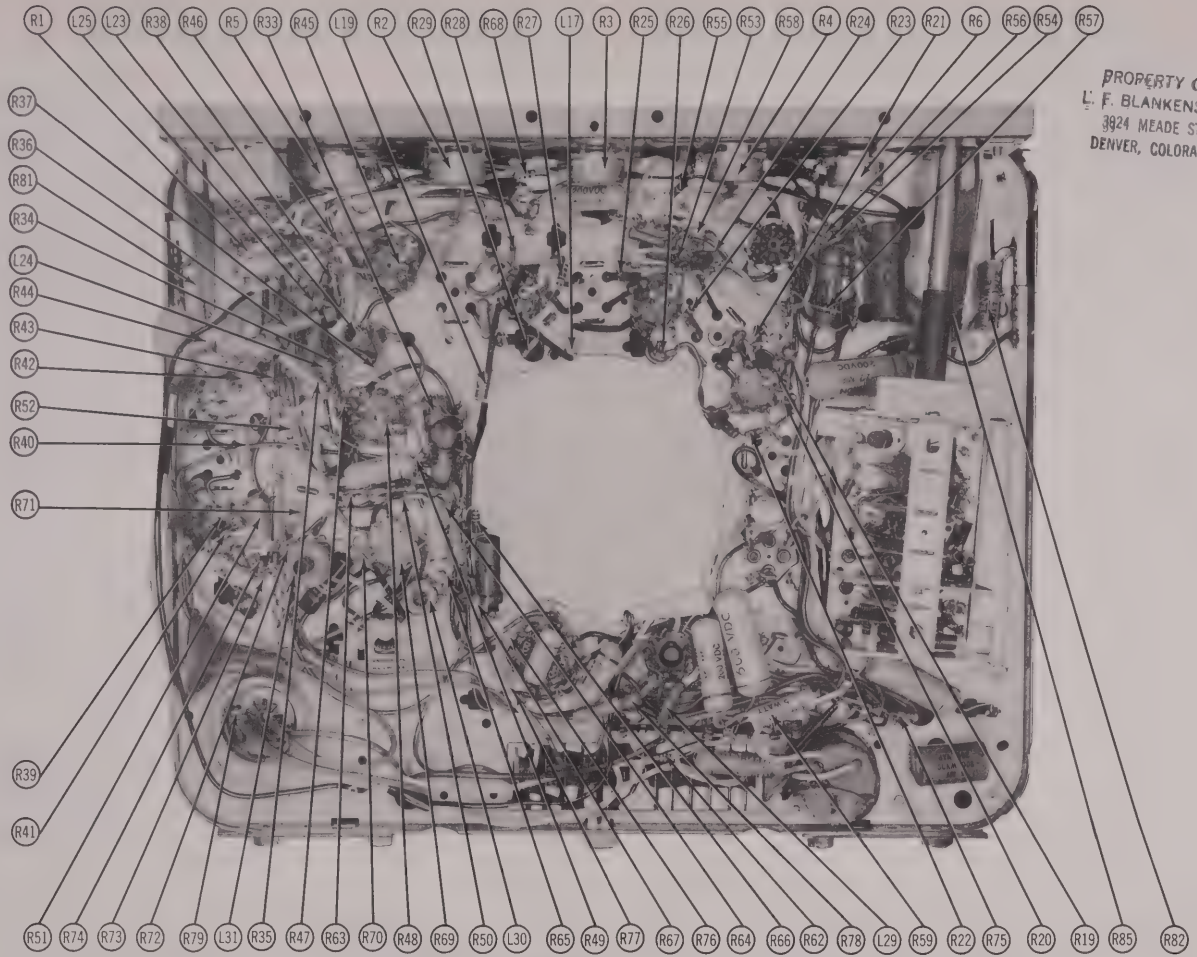


SET 353 FOLDER 3

CORONADO MODELS
TV1-9399A, TV1-9400A



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



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DENVER, COLORADO

CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.
The high voltage lead should be securely taped and kept away from the chassis.

VIDEO IF ALIGNMENT

Connect a 1000MMF capacitor across the input terminals of the scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	1000MMF	High side to pin 1 (grid) of 3CB6 (V3). Low side to chassis.	Not used.	44.4MC (unmod)	4	USE VTVM DC probe thru 10K to point (A). Low side to chassis.	A1	Use only enough generator output to provide usable indication on VTVM. Adjust for maximum deflection.
2.	"	"	"	48.22MC	"	"	A2	Adjust for MINIMUM deflection.
3.	"	"	"	45.4MC	"	"	A3	Use only enough generator output to provide usable indication on VTVM. Adjust for maximum deflection. Repeat step 2.
4.	"	"	"	43.3MC	"	"	A4	Use only enough generator output to provide usable indication on VTVM. Adjust for maximum deflection.
5.	"	"	44.0MC (10MC Swp)	42.65MC 46.75MC	"	Vert. amp thru 10K to point (A). Low side to chassis.		Use only enough sweep generator output to provide usable pattern on scope. Check for response similar to Fig. 1. If necessary, retouch A1, A3 and A4 for desired response. Adjust A1 for MINIMUM tilt. A3 affects high frequency side of curve and A4 affects the low frequency side.
6.	Direct	High side to a narrow strip of insulated metal placed between converter tube and tube shield. Low side to chassis.	Not used.	41.25MC	"	USE VTVM DC probe thru 10K to point (A). Low side to chassis.	A5	Use only enough generator output to provide usable indication on VTVM. Adjust for MINIMUM deflection.
7.	"	"	44.0MC (10MC Swp)	42.65MC 46.75MC	"	Vert. amp thru 10K to point (A). Low side to chassis.	A6, A7	Adjust for response similar to Fig. 1. If necessary, SLIGHTLY retouch A1, A3 and A4 for desired response.

SOUND IF ALIGNMENT

Tune in a TV station and adjust the fine tuning control until sound bars just appear in the picture. Adjust A8 slug counter clockwise from the coil turns; then clockwise until the horizontal scanning lines are smooth and continuous. Readjust the fine tuning for the clearest picture and best sound.
Reduce the signal strength at the antenna terminals by using an attenuator or similar device until a hiss similar to super regenerator is heard in the sound. Adjust A1, A10, A11 and the buzz control (R7) for maximum sound and MINIMUM buzz. If the hiss disappears during these adjustments, further reduce the signal until the hiss returns.

VIDEO TRAP COIL ADJUSTMENT

Turn the set on and tune in a TV station. Adjust the fine tuning until sound bars just appear in the picture. Turn A12 fully counter clockwise and then clockwise until the horizontal scanning lines are smooth and continuous.

RF AND MIXER ALIGNMENT

Connect the negative lead of a 1.5 volt bias battery to point (C). Positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. to point (B). Low side to chassis.	A13, A14	Adjust for maximum amplitude with markers as indicated in Fig. 2.
9.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"		Check for response similar to Fig. 2. If necessary, make compromise adjustment of A13 and A14.
10.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A15, A16	Adjust by compressing or expanding coil turns to obtain response similar to Fig. 2.
11.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"		Check for response similar to Fig. 2. If necessary, make compromise adjustment of A15 and A16.

OSCILLATOR ALIGNMENT

Connect bias as under "RF and Mixer Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning control to the mid-position of its range by setting the flat side of the shaft parallel with the chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Two 120Ω carbon resistors	Across antenna terminals with 120Ω in each lead.	213MC (10MC Swp)	211.25MC	13	Vert. amp thru 10K to point (A). Low side to chassis.	A17	Adjust for response as shown in Fig. 3 with marker at 50%.
13.	"	"	85MC (10MC Swp)	83.25MC	6	"	A18	"

IF INTERFERENCE ADJUSTMENT

Adjust A19 for MINIMUM IF interference in the picture if any is present.

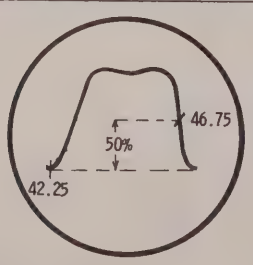


FIG. 1

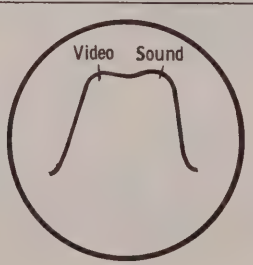


FIG. 2

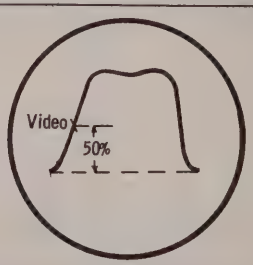
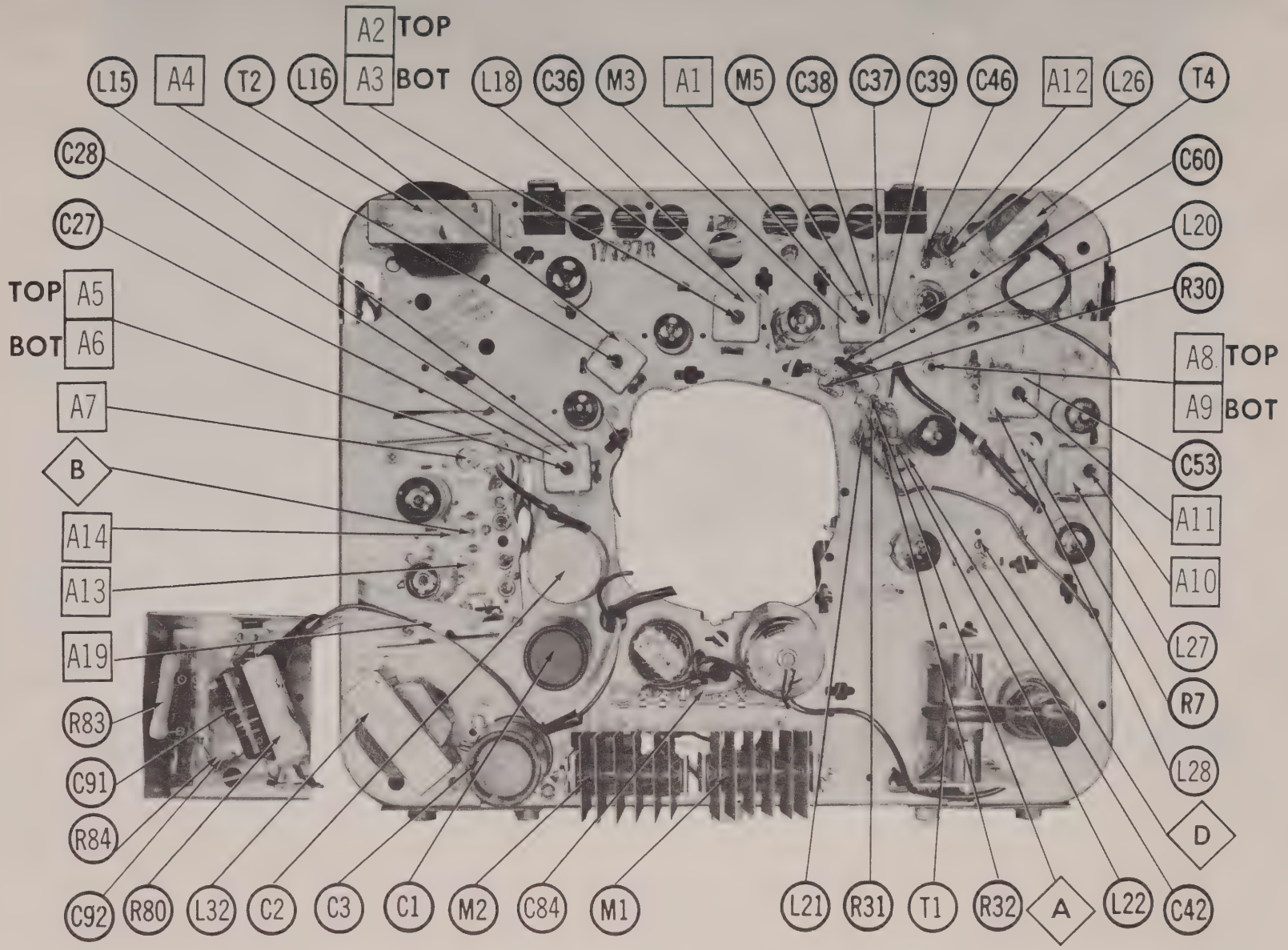


FIG. 3



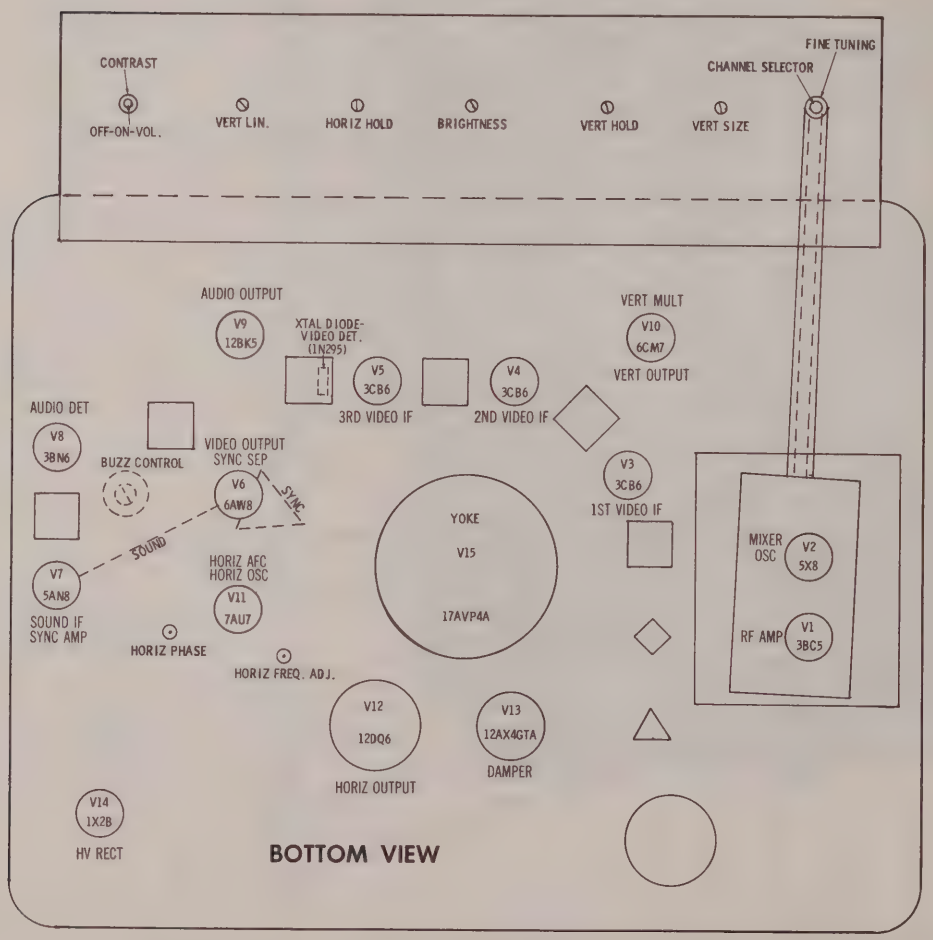
CHASSIS TOP VIEW

CORONADO MODELS
TV1-9399A, TV1-9400A

RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BC5	1Meg	0Ω	12Ω	11Ω	†2800Ω	†6000Ω	0Ω		
V2	5X8	0Ω	10K	†12K	11Ω	10Ω	0Ω	220K	†5000Ω	†2800Ω
V3	3CB6	1Meg	47Ω	10Ω	9Ω	†3700Ω	†3700Ω	0Ω		
V4	3CB6	1Meg	47Ω	9Ω	8Ω	†3700Ω	†3700Ω	0Ω		
V5	3CB6	.1Ω	150Ω	8Ω	7Ω	†2800Ω	†2800Ω	150Ω		
V6	6AW8	0Ω	2.2Meg	†2.2Meg	5Ω	3.5Ω	●120Ω	1Meg	†1800Ω	†4000Ω
V7	5AN8	†7500Ω	22K	0Ω	6Ω	7Ω	†33K	†33K	470K	47Ω
V8	3BN6	●320Ω	.3Ω	0Ω	1.5Ω	†18K	4.8Ω	†220K		
V9	12BK5	†420Ω	TP	22K	16Ω	14Ω	150Ω	22K	†42Ω	NC
V10	6CM7	‡3300Ω	NC	●150K	14Ω	12Ω	●‡4Meg	47K	2.2Meg	●1000Ω
V11	7AU7	†45K	370K	0Ω	5Ω	5Ω	●†30K	1.4Meg	290K	6Ω
V12	12DQ6	TP	18Ω	TP	†15K	470K	TP	16Ω	0Ω	TOP CAP ‡9Ω
V13	12AX4GTA	TP	NC	180K	NC	†42Ω	TP	18Ω	21Ω	
V14	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡279Ω
V15	17AVP4A	3.5Ω	33K	Pin 6 †42Ω	Pin 10 †42Ω	Pin 11 ●120K	Pin 12 1.5Ω			

† MEASURED FROM OUTPUT OF M2.
‡ MEASURED FROM PIN 3 OF V13.
● THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART

PROPERTY OF
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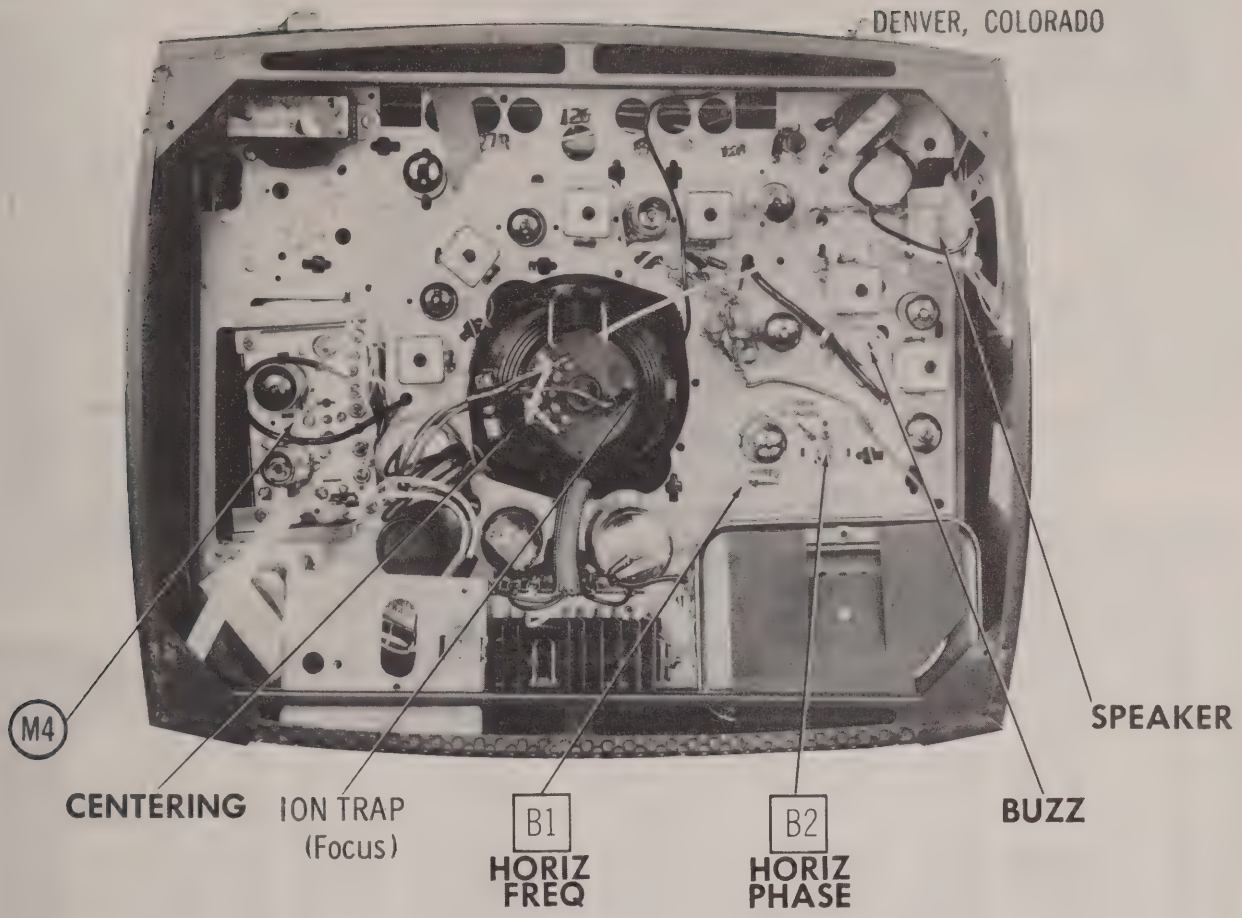
DENVER, COLORADO



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station, preferably with a test pattern.

Turn the horizontal hold control to its mid-range position.

Connect a short clip lead across the horizontal phase coil (L31) and adjust the horizontal frequency slug (B1) until the picture synchronizes horiaontally.

Remove the clip lead, and connect the vertical amplifier of the scope to point Ⓓ. Low side to chassis.

Adjust the horizontal phase slug (B2) until equal peaks are obtained on the waveform as shown in Fig. 4.

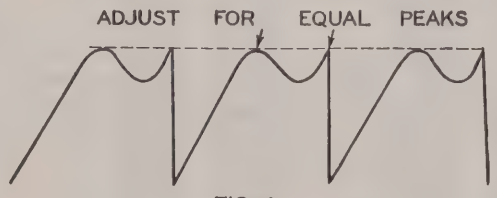


FIG. 4

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amp.	3BC5	
V2	Mixer-Osc.	5X8	
V3	1st Video IF Amplifier	3CB6	
V4	2nd Video IF Amplifier	3CB6	
V5	3rd Video IF Amplifier	3CB6	
V6	Video Output-Sync Sep.	6AW8	
V7	Sound IF Amp.-Sync Amp.	5AN8	
V8	Audio Det.	3BN6	
V9	Audio Output	1BH8	
V10	Vert. Mult.-Vert. Output	6CM7	
V11	Horiz. AFC-Horiz. Osc.	7AU7	
V12	Horiz. Output	1BQ6GB	
V13	Damper	12AX4GTA	
V14	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	CORONADO PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.		
V15	17AVP4	17AVP4	17AVP4	1 Aquadazzled	
	17AVP4A	17AVP4A	17AVP4A ①	2 Silver Screen '85	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	CORONADO PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.	
C1	350	150	BC 32484	AFH8-23	XA0281	FPU7	TMS-25	T-350	TVL-1439	
C2	100	350	BC-37153	AFH31-27-25	BO270	FPJ3	TMS-43	B 200	TVL-1484	
C3A	100	300	BC-25309	AFH4-108-60	DO768	WQ635	TMQ-155	T-537 MTD-4530	TVL-4703, 5	
B	40	300								
C	35	50								
D	50	50								
C4	3	500	BC-24174	PRS350V4	BH435	TC80	TD-B-350	FM-3508	TVA-1801	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	CORONADO PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C5	27		RC6-00031	MPO-S1 27	TCZ-27	CD6Q27C	TCO-27		
C6	18		RC6-00092	MPO-S1 18	TCZ-18	CD6Q18C	TCO-18		
C7	5-30		RC6-00226						
C8	12		RC6 00083	MPO-S1 10	TCZ-10	CD6Q10C	TCO-10	2T-541	5TCC-Q1
C9	1000		RC6-00262	EF-001	MFT-1000				500C-D1
C10	3-3		RC6 01257		ESV 3	31S-D			CT56SA
C11	1000		RC6-00807	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C12	1000		RC6-00259	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C13	1000		RC6 00059	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C14	33		RC6-00130	MPO-S1 33	TCZ-33	CD6Q33C	TCO-33	2T-5433	5TCC-Q33
C15	1.8		RC6-00034	MPO-S1 1	TCZ-2.2	CD6Q1SC	TCO-1.2		5TCCB-V1
C16	3-3		RC6-01221		ESV-3		31S-D		CT56SA
C17	1.5		RC6-00031	MPO-S1 1.5	TCZ-1.5	CD6Q15C	TCO-1.5	2T-5515	5TCCB-Y15
C18	47		RC6-00025	MPO-S1 47	TCZ-47	CD6Q47C	TCO-47		5TCC-Q47
C19	1000		RC6-00058	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C20	1000		RC6-01040	EF-001	MFT-1000				500C-D1
C21	12		RC6-00081						
C22	.1								
C23	1000		RC6-01040	EF-001	MFT-1000				500C-D1
C24	1000		RC6-00059	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C25	1000		RC6-00059	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C26	1000		RC6-01040	EF-001	MFT-1000				500C-D1
C27	100			N750-S1 100	TCN-100	CD6T1U	TCT-100	NT-531	5TCU-T1
C28	27			1467-00027		SWSQ27			MS-427
C29	2.2			MPO-S1 2 2	TCZ-2.2R2	CD6Y22C	TCO-2.2		5TCCB-V22
C30	10			N750-S1 10	TCN-10	CD6Q1A	TCT-27	NT-541	5TCU-Q1
C31	680			BPD-00068	BPD-681	BYA10D68	ED-680	DC-5368	5GA-T68
C32	5000			BPD-005	DD-502	BYA10D50	GP-5000	DC525	5HK-D5
C33	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1
C34	10			N750-S1 10	TCN-10	CD6Q1U	TCT-10	NT-541	5TCU-Q1
C35	680			BPD-00068	BPD-681	BYA10D68	ED-680	DC-5368	5GA-T68
C36	27			1469-00027		SRSQ27			MS-427
C37	15			N750-S1 15	TCN-15	CD6Q15U	TCT-15		5TCU-Q15
C38	33			N750-S1 22	TCN-22	CD6Q22U	TCT-22		5TCU-Q22
C39	5			MPO-S1 5	TCZ-5	CD6Y5C	TCO-5	2T-555	
C40	220			BPD-00022	BPD-271	LU272	ED-220	DC-5222	5GA-T22
C41	5000			BPD-005	BPD-503	BYA10D5	GP-5000	DC525	5HK-D5
C42	.1	200		P268N-1		DF-104	CUB3P1		2TM-P1
C43	5.1				MPO-S1 2.2	TCZ-2.2	CD6Y22C	TCO-2.2	5TCCB-V22
C44	2.2				P448N-1		CUB4P1	GEM-401	4TM-P1
C45	100	400			BPD-001	DD-101	LU271	ED-100	5GA-T1
C46	.033	600			BPD-034		CUB5S3	GEM-5133	5TM-S33
C47	.068	600			P68N-686		CUB6S8	GEM-6168	6TM-S68
C48	33				MPO-S1 33	TCZ-33	CD6Q33C	TCO-33	2T-5433
C49	47				BPD-00047		BYA10T47	ED-470	GC-5347
C50	10000				BPD-01	DD-103	BYA6S1	GP-10000	DC5U
C51	1000				BPD-001	DD-102	BYA6D1	ED-1000	5HK-D1
C52	10								
C53	1000				BPD-001	DD-102	BYA6D1		DC521
C54	10								
C55	1000				BPD-001	DD-102	BYA6D1		DC521
C56	.01	400			BPD-01	DD-103	CUB4S1		GEM-411
C57	10000				BPD-01	DD-103	BYA6S1	GP-10000	DC5U
C58	10000				BPD-01	DD-103	BYA6S1		DC5U
C59	.0047	600			BPD-0047	D6-473	CUB6D47		GEM-6347
C60	22	200			P268N-22	DD-220	CUB2P22		2TM-P22
C61	5000	200			BPD-05	DD-502	BYA10D5		DC525
C62	.047	400			BPD-047	D4-473	BYA6D5	ED-1060	DC52
C63	.047	400			BPD-05	DD-503	CUB4S47		GEM-4147
C64	2000				BPD-002	DD-302	BYA10D2	GP-2000	DC522
C65	.033	400			BPD-03	DD-303	CUB4S3		GEM-4133
C66	.1	200			P188N-1	DF-104	CUB3P1		3TM-P1
C67	.1	400			P188N-1	DF-104	CUB4P1		4TM-P1
C68	.1	200			P188N-1	DF-104	CUB3P1		3TM-P1
C69	1000	3000	8G-34981		BPD-30-100	DDD-102	BYA3D1A	HD3-4000	DC3D1
C70	82				BPD-000047	D4-470	LUQ4T	ED-47	5C-5447
C71	82				BPD-000082	BD-820	LUQ82	ED-82	5C-5482
C72	.047	400			BPD-05	DF-503	CUB4S47		GEM-4147
C73	.047	200			BPD-05	DF-503	CUB2S47		GEM-2147
C74	.033	200			BPD-03	DF-303	CUB2S33		GEM-2133
C75	.47	200			P188N-47	DD-470	CUB2P47		GEM-2047
C76	.0027	600			BPD-0027	D4-272	LUT2T	ED-27U	5GA-T27
C77	01	600			BPD-01	DF-103	CUB6S1		GEM-611
C78	1000				BPD-001	DD-102	BYA6D1	ED-1000	DC521
C79	82	500			BPD-000082	BD-820	LUQ82	ED-82	5C-5482
C80	.001	600			BPD-001	DD-102	CUB6D1		GEM-621
C81	.047	400			BPD-05	DD-503	CUB4S47		GEM-4147
C82	.1	600			P688N-1	DF-104	CUB6P1		GEM-611
C83	.15	200			P188N-15		CUB2P15		GEM-2015

PARTS LIST AND DESCRIPTIONS

CAPACITORS (cont)

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP	VOLT	CORONADO PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C83	68	3000								Note 2
C84	120	1000	8G-35335							
C85	5000			BPD-005	DD-502	BYA10D5	GP-5000	DC525	5HK-D5	
C86	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C87	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C88	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C89	5000			BPD-005	DD-502	BYA10D5	GP-5000	DC525	5HK-D5	
C90A	5000			BPD-2X0047	D2-502	BYE6DD5	GP-5000	DC525	5HK-D2A7	
B	5000						GP-5000	DC525		
C91	22	400		P488N-22		CUB4P22		GEM-4022	4TM-P22	
C92	5000	1500	8G-32612	NVD 15-4700		NVC16D47	HD15-4700	GEM-1625	157M-D5	
C93	5000	1500	8G-32612	NVD-15-4700		NVC16D47	HD15-4700	GEM-1625	157M-D5	

Note 1: Some versions may use 82MMF in this application.
Note 2: Some versions may use 47MMF in this application.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA						INSTALLATION NOTES
	RESIST ANCE	WATTS	CORONADO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.		
R1A	1000Ω	½	10A-23714	F1-4	RTY-495		UP13L	Contrast	
B	1Meg	½		R2-52	Not Req.		UR18A	Volume	
C	Switch			K18-1	Not Req.		UA-26		
R2A	450K	½	10B-23894	AB-3L	A47-502-S	QJ1-123	TA54L	Horiz. Hold	
B	Shaft			AK-4	E2S-3	Not Req.	Not Req.		
R3A	500K	½	10B-23686	AB-5S	A47-500K-S	QJ1-132	TA55L	Brightness	
B	Shaft			AK-4	E2S-3	Not Req.	Not Req.		
R4A	150K	½	10B-23893-1	AB-4S	A47-150K-S	QJ1-330	TA184L	Vert. Hold	
B	Shaft			AK-4	E2S-3	Not Req.	Not Req.		
R5A	2500Ω	½	10B-23788	AB-7	A47-2500-S	QJ1-113	PTA25L	Vert. Lin.	
B	Shaft			AK-10	E2S-3	TQ	Not Req.		
R6A	5Meg	½	10B-23786	AB-8S	A47-5Meg-S	QJ1-143	PTA75SL	Vert. Size	
B	Shaft			AK-10	E2S-3	TQ	Not Req.		
R7	750Ω	2	10D-23897		50-750			Buzz (Wire-wound)	

+ Concentrik Equivalent, Kit K-8, Base Elements & Shafts, B17-108, P17-123 (Panel)
R13-127, R2-118 (Rear)
76-1 Switch

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CORONADO PART No.	IRC PART No.	
R8	10K			BTS-10K	
R9	2200Ω			BTS-2200	
R10	3300Ω			BTS-3300	
R11	4700Ω			BTS-4700	
R12	2200Ω			BTS-2200	
R13	330K			BTS-330K	
R14	1000Ω			BTS-1000	
R15	1000Ω			BTS-1000	
R16	3300Ω			BTS-3300	
R17	10K			BTS-10K	
R18	10K			BTS-10K	
R19	1000Ω			BTS-1000	
R20	5600Ω			BTS-5600	
R21	1000Ω			BTS-1000	
R23	470			BTS-47	
R33	47K				
R24	1000Ω			BTS-1000	
R25	1000Ω			BTS-1000	
R26	47Ω			BTS-47	
R27	47K			BTS-47K	
R28	1000Ω			BTS-4000	
R29	150Ω			BTS-150	
R30	1Meg			BTS-1Meg	
R31	3900Ω			BTS-3900	
R32	3300Ω			BTS-3300	
R34	1Meg			BTS-1Meg	
R35	15K			BTS-15K	
R36	30000 5%	2		BTS-3000 5%	
R37	30000 5%	2		BTS-3000 5%	
R57	82Ω			BTS-83	
R38	100K			BTS-100K	
R39	470K			BTS-470K	
R40	33K	1		BTA-33K	
R41	470			BTS-47	
R42	680Ω			BTS-680	
R43	330K			BTS-330K	
R44	18K	2		BTS-18K	
R45	33K			BTS-33K	
R46	150Ω	1		BTA-150	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	CORONADO PART No.	IRC PART No.	
R47	10K			BTS-10K	Note 1
R48	2.2Meg			BTS-2.2Meg	
R49	1Meg			BTS-1Meg	
R50	33K			BTS-33K	
R51	4700Ω	1		BTA-4700	
R53	1000Ω			BTS-1000	
R53	47K			BTS-47K	
R54	8200Ω			BTS-8200	
R55	75K 5%			BTS-75K 5%	
R56	2.2Meg			BTS-2.2Meg	
R57	2.2Meg			BTS-2.2Meg	
R58	100K			BTS-100K	
R59	3300Ω	5	BC12-D25	PW7-3300	
R60	330Ω				Note 3
R61	330Ω				Note 3
R62	33K			BTS-33K	
R63	330K			BTS-330K	
R64	680K			BTS-680K	
R65	220K			BTS-220K	
R66	68K 5%				
R67	3900Ω			BTS-3900	
R68	39K				Note 1
R69	150K 5%			BTS-150K 5%	
R70	8200Ω			BTS-8200	
R71	18K			BTS-18K	
R72	33K	1		BTA-33K	
R73	82K			BTS-82K	
R74	68K			BTS-68K	
R75	4700Ω			BTS-4700	
R76	470K			BTS-470K	
R77	130Ω			BTS-130	
R78	15K	2		BTS-15K	
R79	2.7Ω		9C1-1068	BW½-2.7	
R80	500	10	RC-27077	2D-50	
R81	1800Ω	5	9C12-1L02		
R82	2700Ω	3	9C11-1L04		
R83	5.1Ω	5	4BM-5R1E		
R84	820K			BTS-820K	
R85	330K			BTS-330K	

Note 1: A 22K resistor is used in some versions.
Note 2: A 1500 resistor is used in some versions.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA						NOTES
		CORONADO PART No.	Halldorson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	Horiz. Output Trans.	12E-27149	FBM48*	HVO-58*	X126*	HO-250*	FLY-26*	D-33*		
T2	Vert. Output Trans.	12E-27189	21803 ①	A-30363 ↓	204T9 ②③	V309 ↓	26851 ↓	A-102X		
T3A	Yoke(80°)Horiz(63MR)200-25260 ⑤		21807 ⑤⑥	MDY-42	235ZH ⑤	Y80F19/43	DY-18A ⑦	Y-16 ⑦	Y-61 & YC	
B	Vert(35MR)	16M-23770 ④	③ 10			⑤ 10	⑤ 10	⑤ 10	⑤ 10	
		12E-25464 ⑤								
		200-25320 ⑤								

① Connect as auto transformer.
② Drill new mounting hole(s).
③ Includes resistors R80, R81 and capacitor C83.
④ Yoke rear cover and centering device.
⑤ Yoke shield.
⑥ Ground lead assembly.
⑦ Use original rear cover and centering device.
⑧ Looses and rotate core clamp to duplicate original shield mounting.
⑨ Connect horiz. network across yoke terms #3 and #1.
10 Use original yoke damping network, if necessary.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type is Listed

	ORIGINAL TERMINAL CONNECTIONS	Halldorson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
	8	8	8	8	8	8	8	8
	2	3	6	6	3	2	3	3
	1	2	7	7	2	1	2	2
Special Term. ⑪			11					11

⑪ Connect approx. 50-100MMF ② 4KV capacitor across horiz. yoke terms #3 and #1.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE	REPLACEMENT DATA					NOTES
		CORONADO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
	PRI. SEC.							
T4	6400Ω 3-4Ω	12C-23704	21113	A-3036	A-3878	34080	S-7X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
				CORONADO PART No.	QUAM PART No.	
	SIZE	FIELD	V C IMP			
SP1	4"	PM	3-4Ω	18A-25934-1	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA		NOTES
		CORONADO PART No.	MEISSNER PART No.	
L1	Ant. Coil	RC3-45187		
L2	41MC Trap	RC3-43095		
L3	Ant. Coil	RC3-45120		
L4	Fil. Choke	RC3-43095		
L5	Ant. Coil	RC3-35797	Channel 2 thru 13	
L6	Ant. Coil	RC3-43207	Channel 13	
L7	RF Coils	RC3-35761	Channel 2 thru 12	

ITEM No.	USE	REPLACEMENT DATA		NOTES
		CORONADO PART No.	MERIT PART No.	
L8	RF Coil	RC3-42105	Channel 13	
L9	Mixer Grid Coils	RC3-35819	Channel 2 thru 12	
L10	Mixer Grid Coil	RC3-42230	Channel 13	
L11	Conv. Plate Coil	RC3-45244		
L12	Osc. Coils	RC1-35775	Channel 2 thru 12	
L13	Osc. Coil	RC3-43109	Channel 13	
L14	Osc., Coil	RC3-42318	Channel 13	

ITEM No.	USE	REPLACEMENT DATA				NOTES
		CORONADO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L15A	1st Video IF	18A-24203				
B	41.25MC Trap					
L16	2nd Video IF	13A-24224				
L17	Fil. Choke	18A-25688		19-1001	6804	L 5 Microhenries
L18A	3rd Video IF	13A-24027				
B	47.25MC Trap					
L19	Fil. Choke	18A-25688		19-1001	6804	L 5 Microhenries
L20	Series Peaking Coil	16A-26926				7.5 Microhenries, 68MC
L21	Shunt Peaking Coil	16A-27301		TV-185	6181	330 Microhenries
L22	Series Peaking Coil	16A-27467			6136	440 Microhenries
L23A	4.5MC Trap	301-23729				
B	1st Sound IF					
L24	Series Peaking Coil	16A-27466		19-3075	6172	80 Microhenries
L25	Shunt Peaking Coil	16A-27304		19-4400	6136	400 Microhenries
L26	4.5MC Trap	16A-25441				
L27	2nd Sound IF	301-23673				
L28	Quadrature Coil	301-23727	80-1005		1480	
L29	RF Choke	16A-31701				8 Microhenries

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	CORONADO PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L30	85Ω		301-24473			6315			HS-7	Tapped @ 58Ω ✓ Horiz. Freq.
L31	35Ω		301-24473-3			6314			HS-5	Horiz. Phase

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE 10 CURRENT 1000 ~/s	CORONADO PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L32	350A	43Ω	1.53H	16B-25145-3	C503T ①	C-3986 ①	C-32261	26C44 ↓	C-47X ↓

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	CORONADO PART No.	REPLACEMENT DATA	
K1	Ant. Coupler	470MMF, 3-1Meg	RC6-70000		
K2	Ant. Coupler	470MMF, 3-1Meg	RC6-70000		
K3	Vertical integrator	2000MMF, 5000MMF, 5000MMF, 22K, 82000, 8200Ω	17A-23376	Aerovox Centralab Erie	PA-310 PC-100 1405-01
K4	Sync Coupler	270MMF, 10000MMF, 235MMF, 270K, 2, 2Meg	17A-24512	Aerovox Centralab Sprague	PA-533 PC-363 SY-3

CORONADO MODELS TV1-9399A, TV1-9400A

PARTS LIST AND DESCRIPTIONS (Continued)

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA						
	CURRENT (Measured)	CORONADO PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.
M1	. 250A	21J-25315 ①	1241A ①	1N1007 ②	MR350 ①	6S450 ①	6QA2 ①	350A ①
M2	. 250A	21J-25315 ①	1241A ①	1N1007 ②	MR350 ①	6S450 ①	6QA2 ①	350A ①

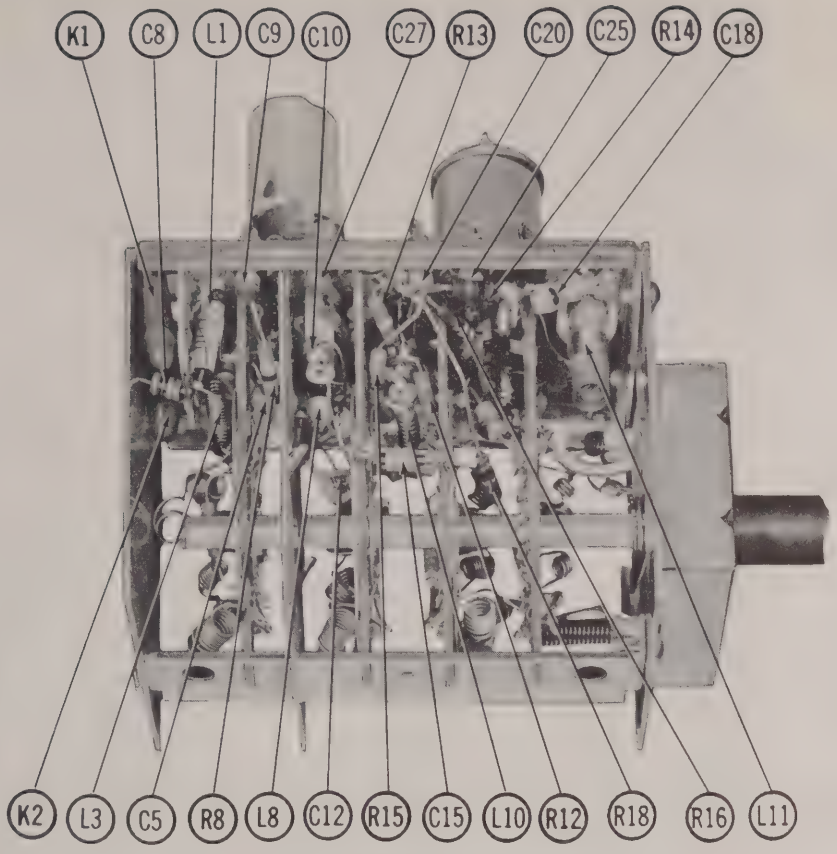
① Selenium type.
② Germanium type.

CRYSTAL DIODES

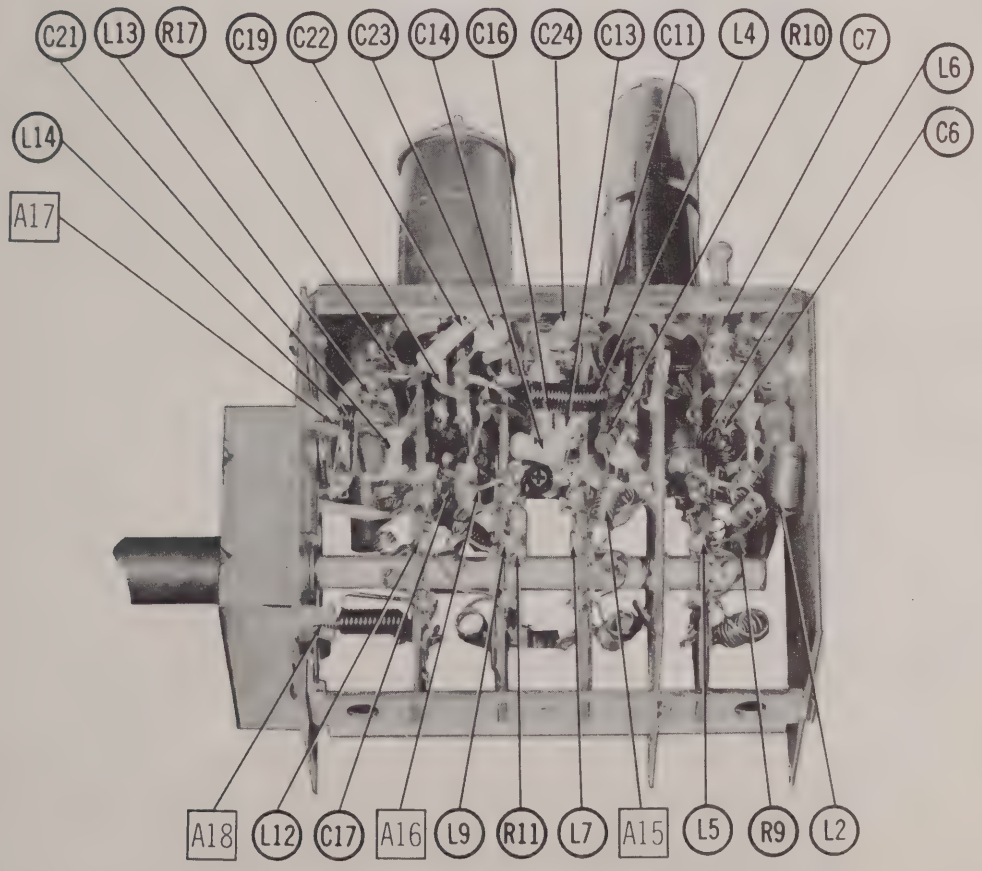
ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		CORONADO PART No.	SYLVANIA PART No.	
M3	1N295		1N60	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	CORONADO PART No.	NOTES
M4	Tuner	21I-27257	VHF
M5	Video Det. Ass'y.	13B-27003-1	Includes 4th Video IF, Caps., RF Choke, M3, Series Peaking Coils.
M6	Centering Device	16M-23770	
M7	Ion Trap	16M-19705	
M8	Correction Magnet		
	Yoke Clamp	49A-27154	Anti-Pin Cushion (2 used)
	Glass	30M-27508	Safety, Model 9400
	Glass	30M-18773	Safety, Model 9399
	Handle	23A-27143	Model 9400
	Handle Post	23A-27141	Model 9400
	Knob	5B-27314-A93	Channel Selector, Model 9399
	Knob	5B-27314-A221	Channel Selector, Model 9400
	Knob	5B-27315-A93	On-Off-Volume, Model 9399
	Knob	5B-27315-A221	On-Off-Volume, Model 9400
	Knob	5B-27287-A93	Vertical Hold, Model 9399
	Knob	5B-27287-A221	Vertical Hold, Model 9400
	Knob	5B-27288-A93	Horizontal Hold, Model 9399
	Knob	5B-27288-A221	Horizontal Hold, Model 9400
	Knob	5B-27289-A93	Brightness, Model 9399
	Knob	5B-27289-A221	Brightness, Model 9400
	Knob	5B-27311-A29	Fine Tuning
	Knob	5B-27310-A29	Contrast
	Cabinet	200-27510	Model 9399
	Cabinet	200-27306	Model 9400



RF TUNER-LEFT SIDE



RF TUNER-RIGHT SIDE

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DENVER, COLORADO

ELECTRO-VOICE
MODEL A15CL

ELECTRO-VOICE
MODEL A15CL

TRADE NAME	Electro-Voice Model A15CL
MANUFACTURER	Electro-Voice, Inc., Buchanan, Michigan
TYPE SET	AC Operated 5 Channel Audio Amplifier
TUBES (Eight)	Types 12AX7 Phono Preamp., 12AX7 AF Amp., 12AX7 AF Amp. - Phase Inv., 12BH7A Driver, (2) EL84 Output, (2) 6X4 Rectifier
POWER SUPPLY	105-125 Volts AC-60 Cycles RATING .65 Amp. @ 117 Volts AC (50 Watts)

HOWARD W. SAMS & CO., INC. • Indianapolis 5, Indiana

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PARTS LIST AND DESCRIPTIONS

ELECTRO-VOICE
MODEL A15CL

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Phono Preamplifier	12AX7	
V2	AF Amplifier	12AX7	
V3	AF Amp. -Phase Inverter	12AX7	
V4	Driver	12BH7A	
V5	Output	EL84	
V6	Output	EL84	
V7	Rectifier	6X4	
V8	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA Electro-Voice PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲40	400	4208	AFH2-57	B0450	FP238	TMD-43	D-235	TVL-2764
B	▲40	400							
C2A	▲40	400	4208	AFH2-57	B0450	FP238	TMD-43	D-235	TVL-2764
B	▲40	400							
C3	50	100	4242	PRS150V50	BR5015	TC49	TD-50-150	FM-1550	TVA-1414
C4A	▲20	350	42045	AFH3-36	C0270	FP376.5	TMT-34	T-140	TVL-3780
B	▲20	350							
C	■20	350							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

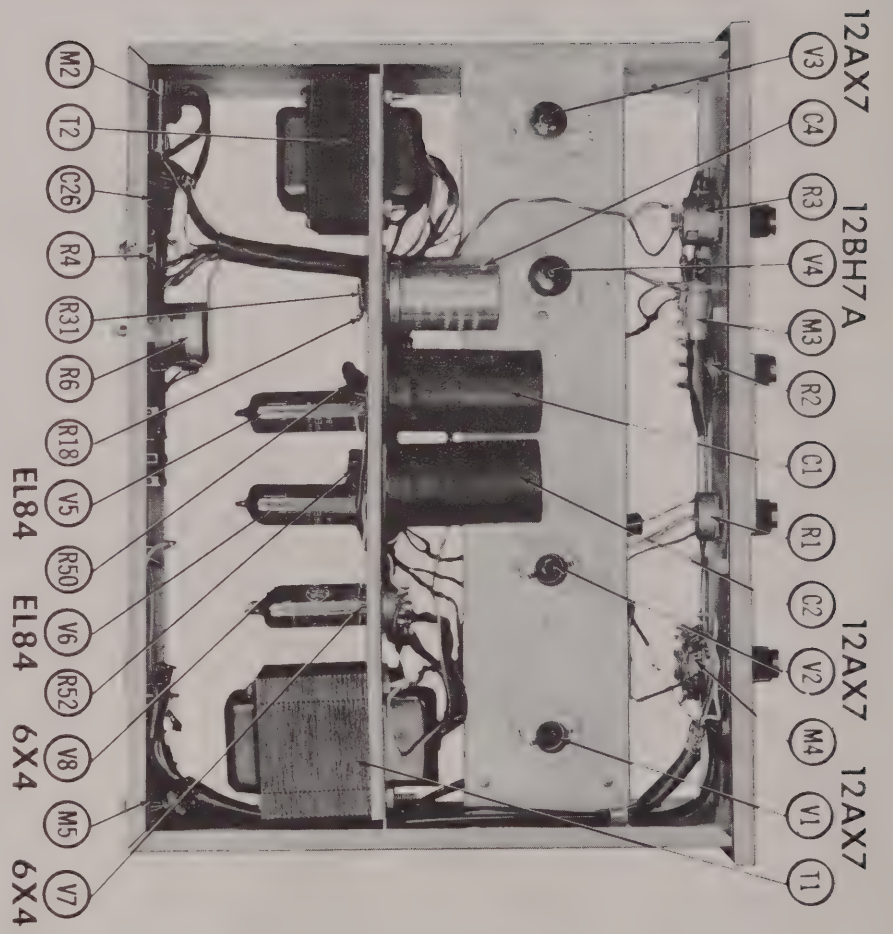
ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA Electro-Voice PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	10000		4252	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C6	5000		42002	BPD-005	DD-502	BYA10D5	GP-5000	DC525	5HK-D5	
C7	10000		4252	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C8	2000		4259	BPD-002	DD-202	BYA10D2	GP-2000	DC522	5HK-D2	
C9	10000		4252	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C10	.022	400	4260	BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	Note #1
C11	500		42003	BPD-0005	DD-501	BYA10T5	ED-500	UC-535	5GA-T5	
C12	500		42003	BPD-0005	DD-501	BYA10T5	ED-500	UC-535	5GA-T5	
C13	1000		4258	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C14	.047	400	4243	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	Note #2
C15	200		4256	BPD-0002	DD-201	L10T2	ED-200	UC-532	5GA-T2	
C16	2000		4259	BPD-002	DD-202	BYA10D2	GP-2000	DC522	5HK-D2	
C17	.047	400	4243	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C18	.022	400	4260	BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C19	100		4281	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C20	.022	400	4260	BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C21	.022	400	4260	BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C22	.1	600	4241	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C23	10000		4252	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C24	.022	400	4260	BPD-02	DD-203	CUB4S22	ED-02	GEM-4122	4TM-S22	
C25	.1	600	4241	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C26	.047	400	4243	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C27	.047	400	4243	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	

Note #1. Some versions use .1MFD in this application (Part No. 42047).
Note #2. Some versions use 10000MMF in this application (Part No. 4257).

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA Electro-Voice PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	250K	½	B46086	B-51	A47-250K-Z	Q13-130	U44	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R2A	1Meg	½	Q4686	B-70	A47-1Meg-Z	Q13-137	U53	Treble
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
R3A	1Meg	½	Z4686	B-70	A47-1Meg-Z	Q13-137	U53	Bass
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	
R4A	500Ω	½	R4686	AB-4	A47-500-S	Q11-103	U2	Phono Hum Adj. (Ceramic)
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R5A	500Ω	½	R4686	AB-4	A47-500-S	Q11-103	U2	Phono Hum Adj. (Magnetic)
B	Shaft			AK-1	FKS-1/4	RQ	Not Req.	
R6A	1Ω	2	D46086					Damping (Wire Wound)
B	1800Ω	2						Damping (Wire Wound)

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Electro-Voice PART No.	IRC PART No.	
R7	22Meg		4606	BTS-22Meg	
R8	270K		4669	BTS-270K	
R9	270K		4669	BTS-270K	
R10	47K		4668	BTS-47K	
R11	120K		4670	BTS-120K	
R12	2200Ω		4676	BTS-2200	
R13	1.2Meg		4656	BTS-1.2Meg	
R14	120K		4670	BTS-120K	
R15	12Meg		4272	BTS-12Meg	
R16	120K		4670	BTS-120K	
R17	1.2Meg		4656	BTS-1.2Meg	
R18	22K		4678	BTS-22K	
R19	1.8Meg		4673	BTS-1.8Meg	
R20	56K		4652	BTS-56K	
R21	4700Ω		4675	BTS-4700	
R22	1200Ω		4658	BTS-1200	
R23	330K		4685	BTS-330K	
R24	390K		46028	BTS-390K	
R25	47K		4668	BTS-47K	
R26	120K		4670	BTS-120K	
R27	12K	2	4679	BTB-12K	
R28	120K		4670	BTS-120K	
R29	180K		4671	BTS-180K	
R30	1800Ω		4677	BTS-1800	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Electro-Voice PART No.	IRC PART No.	
R31	22K		4678	BTS-22K	
R32	270K		4669	BTS-270K	
R33	22K		4678	BTS-22K	
R34	1.2Meg		4656	BTS-1.2Meg	
R35	27K		4651	BTS-27K	
R36	27K		4651	BTS-27K	
R37	470Ω		4654	BTS-470	
R38	470K		4650	BTS-470K	
R39	470K		4650	BTS-470K	
R40	470K		4650	BTS-470K	
R41	12K	2	4679	BTB-12K	
R42	12K	2	4679	BTB-12K	
R43	1200Ω		4658	BTS-1200	
R44	470K		4650	BTS-470K	
R45	120Ω		4607	BTS-120	
R46	470K		4650	BTS-470K	
R47	120Ω		4607	BTS-120	
R48	47K		4668	BTS-47K	
R49	15K		4653	BTS-15K	
R50	100Ω	2	4655	BTB-100	
R51	15K		4653	BTS-15K	
R52	100Ω	2	4655	BTB-100	
R53	270Ω		46034	BTS-270	

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	Electro-Voice PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .65A	555VCT @ .017A	555VCT @ .017A	6.3VAC @ 4A	15024					
			SEC. 4	SEC. 5						
			6.3VAC @ .3A	20VAC @ 0A (Bias Winding)						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	Electro-Voice PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	1600Ω Tapped	16Ω Taps @ 8Ω, 4Ω	15025						

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	Electro-Voice PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1		5914	1159	CR10	8S20		10	

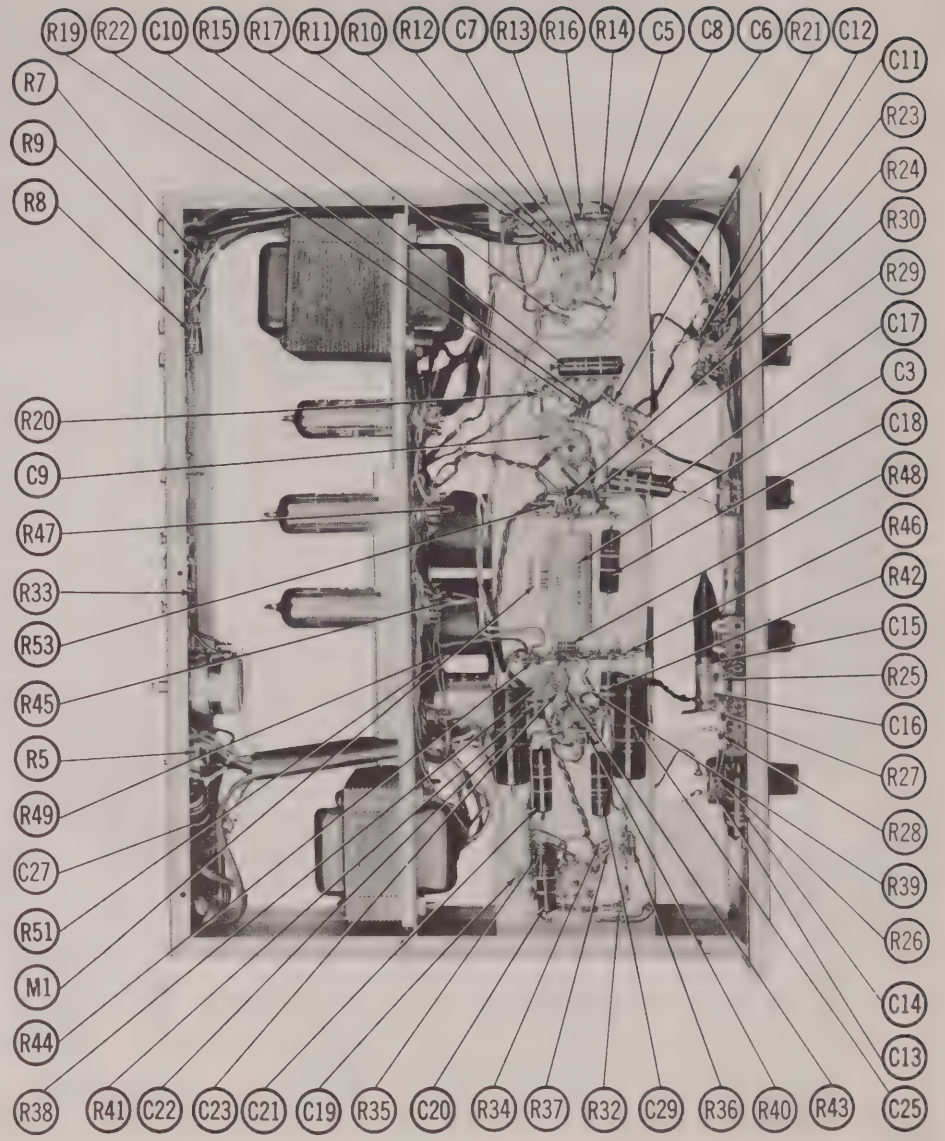
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			Electro-Voice PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2	3AG	1 1/2 A 125V Slo/Blo	20171		31301.5 (3AG-125V 1 1/2A Slo/Blo)	356001	MDL 1 1/2	4405

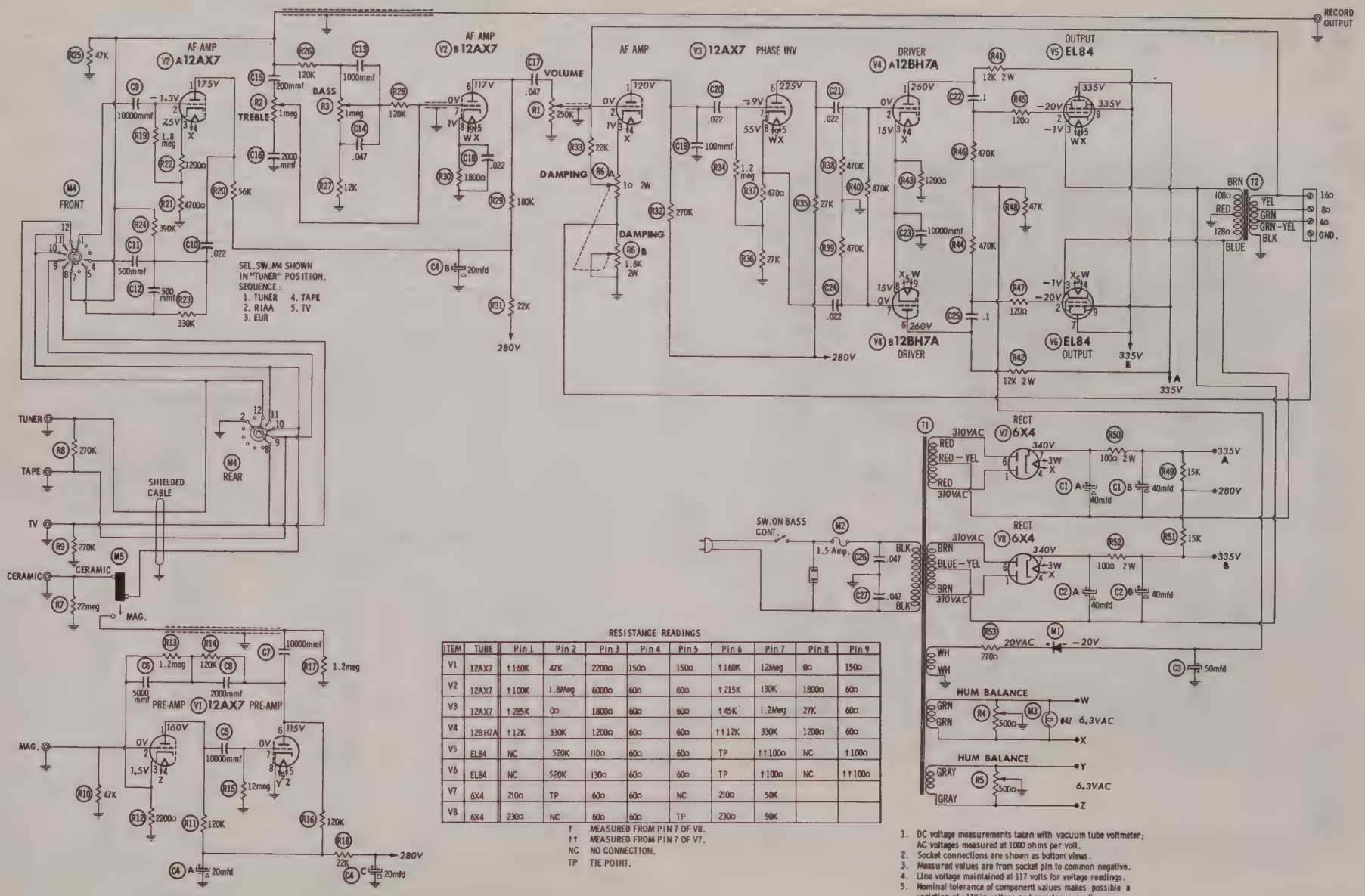
MISCELLANEOUS

ITEM No.	PART NAME	Electro-Voice PART No.	NOTES
M3	Pilot Lamp		#47
M4	Switch		Function (Rotary, Wafer Type)
M5	Switch		Ceramic-Magnetic, Slide Type (S. P. D. T.)

CHASSIS—BOTTOM VIEW



ELECTRO-VOICE MODEL A15CL



ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	†160K	47K	2200Ω	150Ω	150Ω	†160K	12Meg	0Ω	150Ω
V2	12AX7	†100K	1.8Meg	6000Ω	60Ω	60Ω	†215K	130K	1800Ω	60Ω
V3	12AX7	†285K	0Ω	1800Ω	60Ω	60Ω	†45K	1.2Meg	27K	60Ω
V4	12BH7A	†12K	330K	1200Ω	60Ω	60Ω	††12K	330K	1200Ω	60Ω
V5	EL84	NC	520K	110Ω	60Ω	60Ω	TP	††100Ω	NC	†100Ω
V6	EL84	NC	520K	130Ω	60Ω	60Ω	TP	†100Ω	NC	††100Ω
V7	6X4	210Ω	TP	60Ω	60Ω	NC	210Ω	50K		
V8	6X4	230Ω	NC	60Ω	60Ω	TP	230Ω	50K		

RESISTANCE READINGS

† MEASURED FROM PIN 7 OF V8.
†† MEASURED FROM PIN 7 OF V7.
NC NO CONNECTION.
TP TIE POINT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

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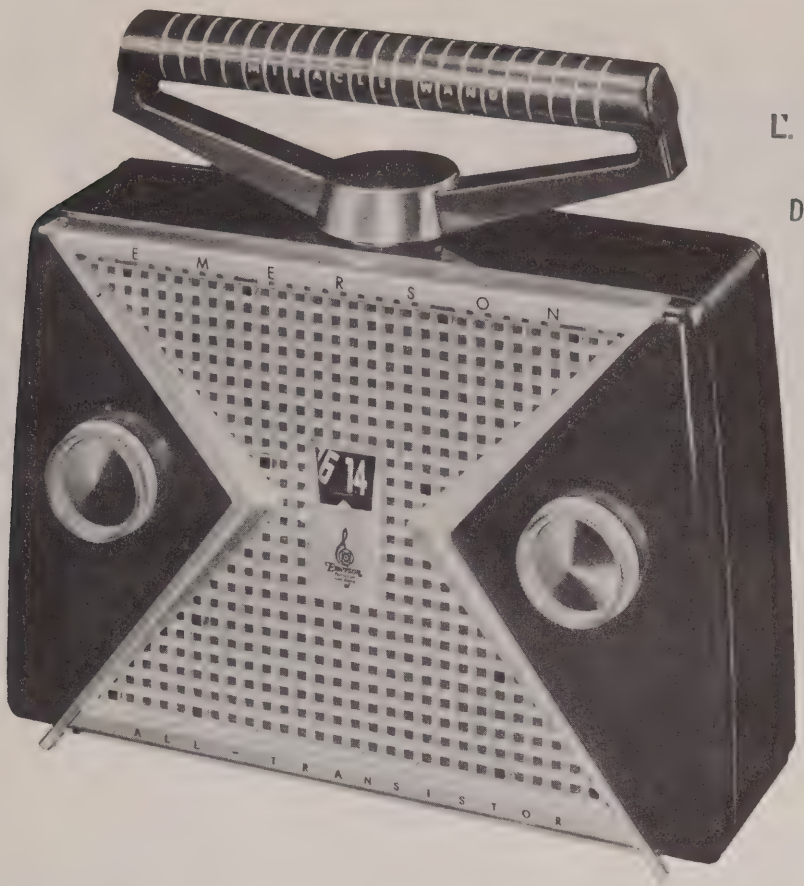
EMERSON MODELS
844 (Ch. 120309), 847 (Ch. 120328)



EMERSON MODELS
844 (Ch. 120309), 847 (Ch. 120328)

TRADE NAME	Emerson Models 844 (Ch. 120309), 847 (Ch. 120328)
MANUFACTURER	Emerson Radio & Phono Corp., 14th & Coles Sts., Jersey City 2, N.J.
TYPE SET	Battery Operated Portable AM Transistorized Receiver
POWER SUPPLY	9 Volts DC
RATING	8MA @ 9 Volts DC
TUNING RANGE—BROADCAST	540KC - 1650KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.		High side to ant. stator lug on tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.		Loop	1650KC	"	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	Tune to 1400KC signal.	"	A5	"
4.		"	600KC	Tune to 600KC	"	A6	Adjust for maximum output while rocking tuning gang.

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PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	USE	EMERSON PART NO.	NOTES
X1	Converter (2N172)	815009	
X2	1st IF Amplifier (2N145)	815010	
X3	2nd IF Amplifier (2N147)	815010	
X4	Driver	815013	
X5	Output	815014	Note #1
X6	Output	815014	Note #1

Note #1. X5 And X6 Must Be A Matched Pair.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	EMERSON PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	20	10	925368	PRS150/25V 8020/100					R2362 *
B	80	10							
C	100	10							
C2	5	10	925352	XPP12V5	NL5-15	Tap 50-5	ML5-15	MMT0505	TE1127
C3	20	6	925353	XPP6V20	NL20-6	Tap 10-20	ML20-6	MMT0220	TE1157

* Non Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	EMERSON PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	50000		928139	BPD-05	DF-503					
C5	10000		928758	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	10000		928758	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C7	10000		928758	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	20000		928756	BPD-02	DD-203	BYA6S2	ED-02		5HK-S2	
C9	10000		928758	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C10	20000		928756	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C11	20000		928756	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C12	1000		928136	BPD-001	DD-102	BYA6D1	ED-001	DC521	5HK-D2	
C13	.04	150	922042	P288N-04		CUB6S4		GEM-414	4TM-S4	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES	
	RESISTANCE	WATTS	EMERSON PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.		
R1A	4000Ω	½	390500	B-11		Q13-114	U14	Volume	Note #1.
B	Shaft			Not Req.		Not Req.	Not Req.		
C	Switch			KB-1		76-1	US-26		

Note #1. Part No. 390509 Used In Chassis 120309.

RESISTORS

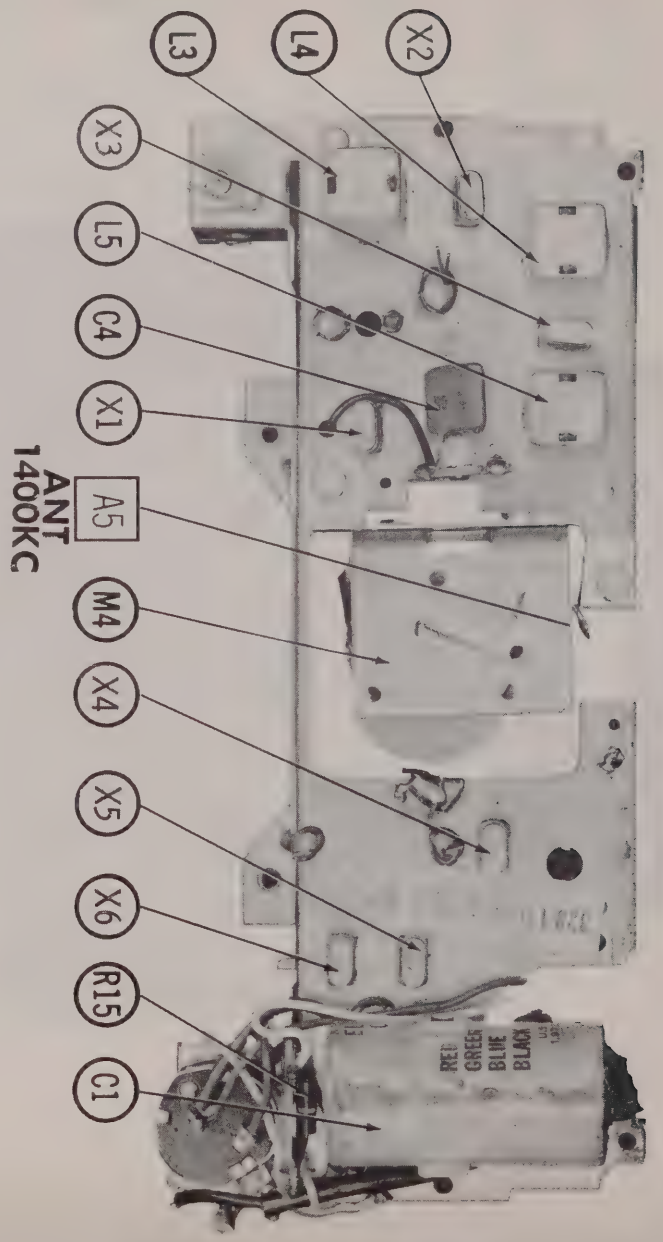
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	EMERSON PART No.	IRC PART No.	
R2	150K		341012	BTS-150K	
R3	1500Ω		340532	BTS-1500	
R4	220Ω		350332	BTS-220	
R5	68K		340932	BTS-68K	
R6	330Ω		340372	BTS-330	
R7	3300Ω		340612	BTS-3300	
R8	15K		340772	BTS-15K	
R9	2200Ω		340572	BTS-2200	
R10	220Ω		350332	BTS-220	
R11	1000Ω		340492	BTS-1000	
R12	3300Ω		340612	BTS-3300	
R13	22K		340812	BTS-22K	
R14	2200Ω		340572	BTS-2200	
R15	220K		351052	BTS-220K	
R16	470Ω		340412	BTS-470	
R17	330Ω		340372	BTS-330	
R18	68Ω		340212	BTS-68	
R19	10Ω		340012	BTS-10	
R20	4700Ω		340652	BTS-4700	
R21	100Ω		350252	BTS-100	

TRANSFORMER (INPUT)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	EMERSON PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2 :	1	734128				TR-6		

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	EMERSON PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	355Ω CT	3-4Ω	734129				TR-27		

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	EMERSON PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	180144	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		EMERSON PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	700116				
L2	Osc. Coil	716105	14-9014			
L3	1st IF	720249	16-9002		2041	
L4	2nd IF	720249	16-9002		2041	
L5	3rd IF	720248	16-9002		2042	

BATTERIES

ITEM No.	VOLTAGE	EMERSON PART No.	REPLACEMENT DATA								
			BURGESS			EVEREADY			MALLORY		
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	"A"	"B"	"A-B"
M1	9V	818116 *		D-6 *			276 *			M1603 *	

*2 Required (Connected In Parallel).

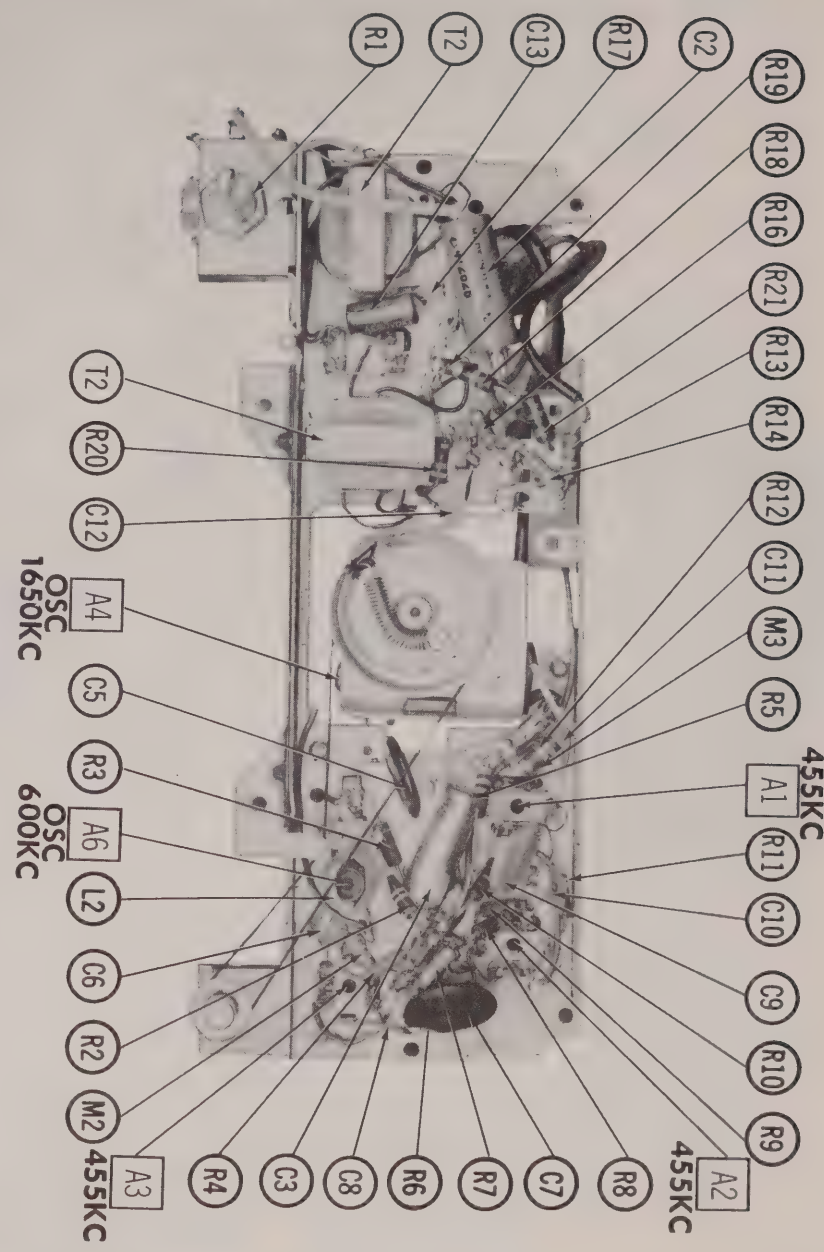
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		EMERSON PART No.	SYLVANIA PART No.	
M2	CK706C	817051	1N60	Auxiliary AGC (Pigtail)
M3	1N295	817038	1N60	Audio Detector (Pigtail)

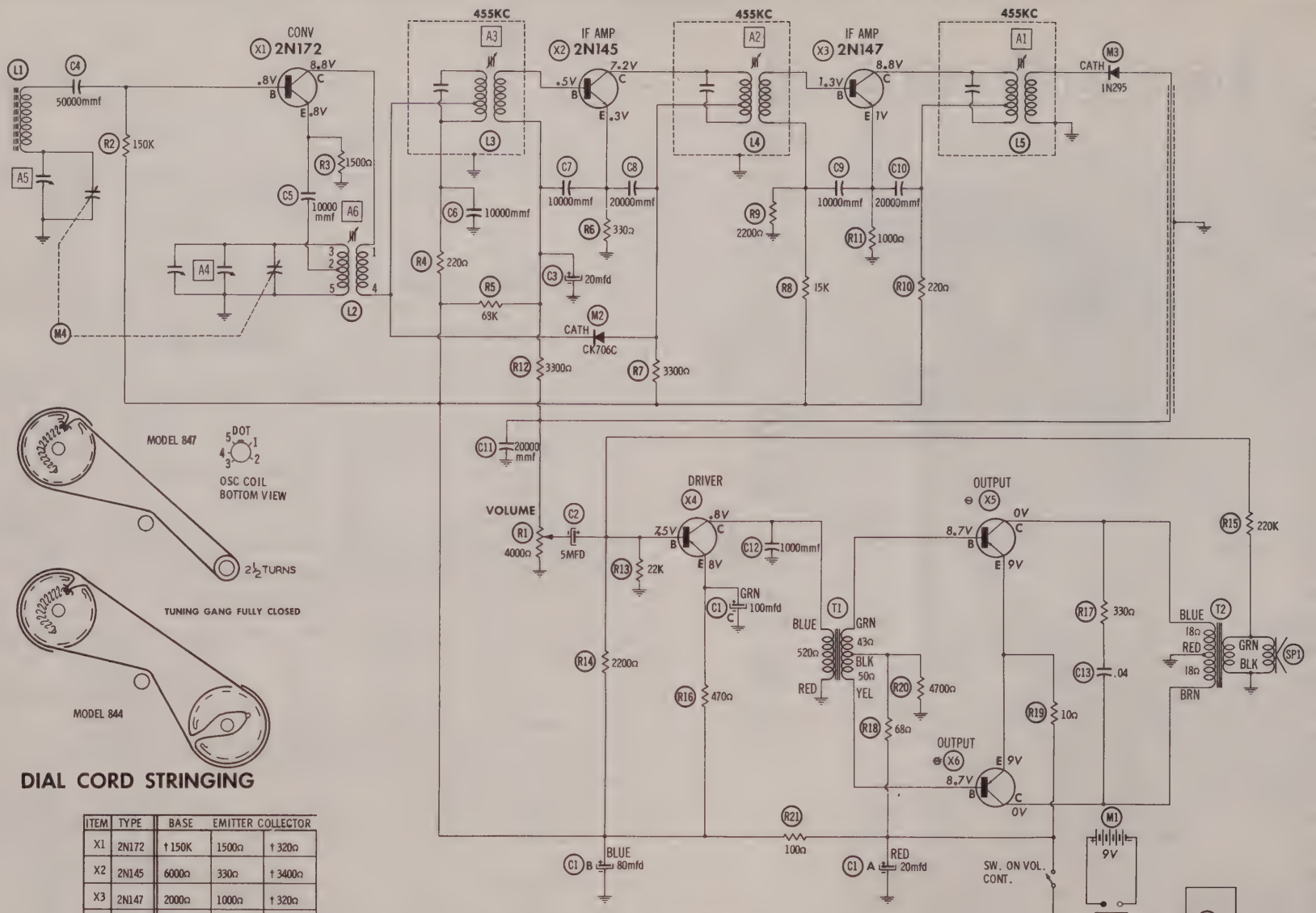
MISCELLANEOUS

ITEM No.	PART NAME	EMERSON PART No.	NOTES
M4	Tuning Cap	900154	Two Gang, (13-228, 22-128MMF), Used In Chassis #120328, Part #900155 Used In Chassis 120309
	Station Ind. Disc	412540	
	Knob	460773	On-Off-Volume (Clear) Model 847
	Knob	460774	Tuning (Clear) Model 847
	Knob	460778	On-Off-Volume (Blond) Model 844
	Knob	460777	Tuning (Blond) Model 844
	Handle	961826	Specify Color

CHASSIS—BOTTOM VIEW



EMERSON MODEL 844 (Ch. 120309)



DIAL CORD STRINGING

ITEM	TYPE	BASE	EMITTER	COLLECTOR
X1	2N172	†150K	1500Ω	†320Ω
X2	2N145	6000Ω	330Ω	†3400Ω
X3	2N147	2000Ω	1000Ω	†320Ω
X4		†2300Ω	†570Ω	520Ω
X5		†110Ω	†10Ω	18Ω
X6		†120Ω	†10Ω	18Ω

RESISTANCE TAKEN WITH TRANSISTORS REMOVED.
† MEASURED FROM POSITIVE LEAD OF C1A.

1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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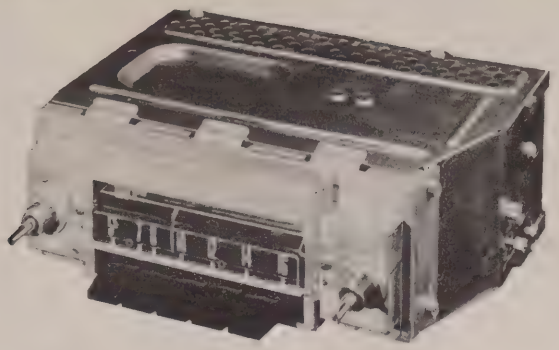

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DENVER, COLORADO

FORD MODEL
75MF (FEG-18806-H)

TRADE NAME	Ford Model 75MF (FEG-18806-H) For 1957 Ford Automobiles
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Ill.
TYPE SET	Battery Operated Custom Built AM Automobile Receiver With Transistorized Output
TUBES (Five)	Types 12BL6 RF Amplifier, 12AD6 Converter, 12AF6 IF Amplifier, 12AJ6 Det-AVC-AF Amp., 12K5 AF Amplifier
POWER SUPPLY	12 Volt Storage Battery — RATING 1.7 Amp. @ 12.6 Volts DC
TUNING RANGE—BROADCAST	540KC - 1600KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting. Tone control to "High".

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12AD6 (V1). Low side to chassis.	262.5KC (400~ Mod)	High frequency end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Fig. 1	High side thru dummy to antenna receptacle. Low side to chassis.	1610KC	"	"	A5, A6, A7	"
	Steps 3, 4 and 5 are not necessary except in case of tuner component replacement or if tuner has been tampered with. If necessary, back tuning cores out of coils 1 3/8" before proceeding with step 3.						
3.	Fig. 1	High side thru dummy to antenna receptacle. Low side to chassis.	1610KC	High frequency end stop.	Across voice coil.	A5, A6, A7	Adjust for maximum output.
4.	"	"	1020KC	Back carriage 25/32" from high frequency end stop.	"	A8, A9, A10	Adjust for maximum output. See Fig. 2.
5.	"	"	1610KC	High frequency end stop.	"	A5, A6, A7	Adjust for maximum output.
	With radio installed in car and antenna fully extended, tune in a weak station near 1400KC and adjust A7 for maximum volume.						

POINTER ADJUSTMENT

With receiver tuned to 1000KC signal, adjust pointer adjusting cam so that pointer is centrally located over the 1000KC dial scale marking.

PUSHBUTTON ADJUSTMENT

1. Allow a 15 minute warm-up period.
2. Unlock pushbuttons by pulling straight out.
3. Tune carefully to desired station.
4. Press pushbutton in firmly.
5. Repeat on remaining pushbuttons.

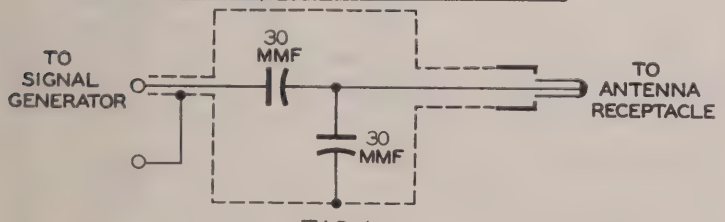

FIG. 1

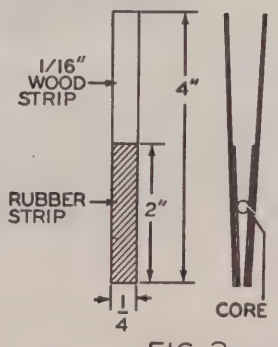

FIG. 2

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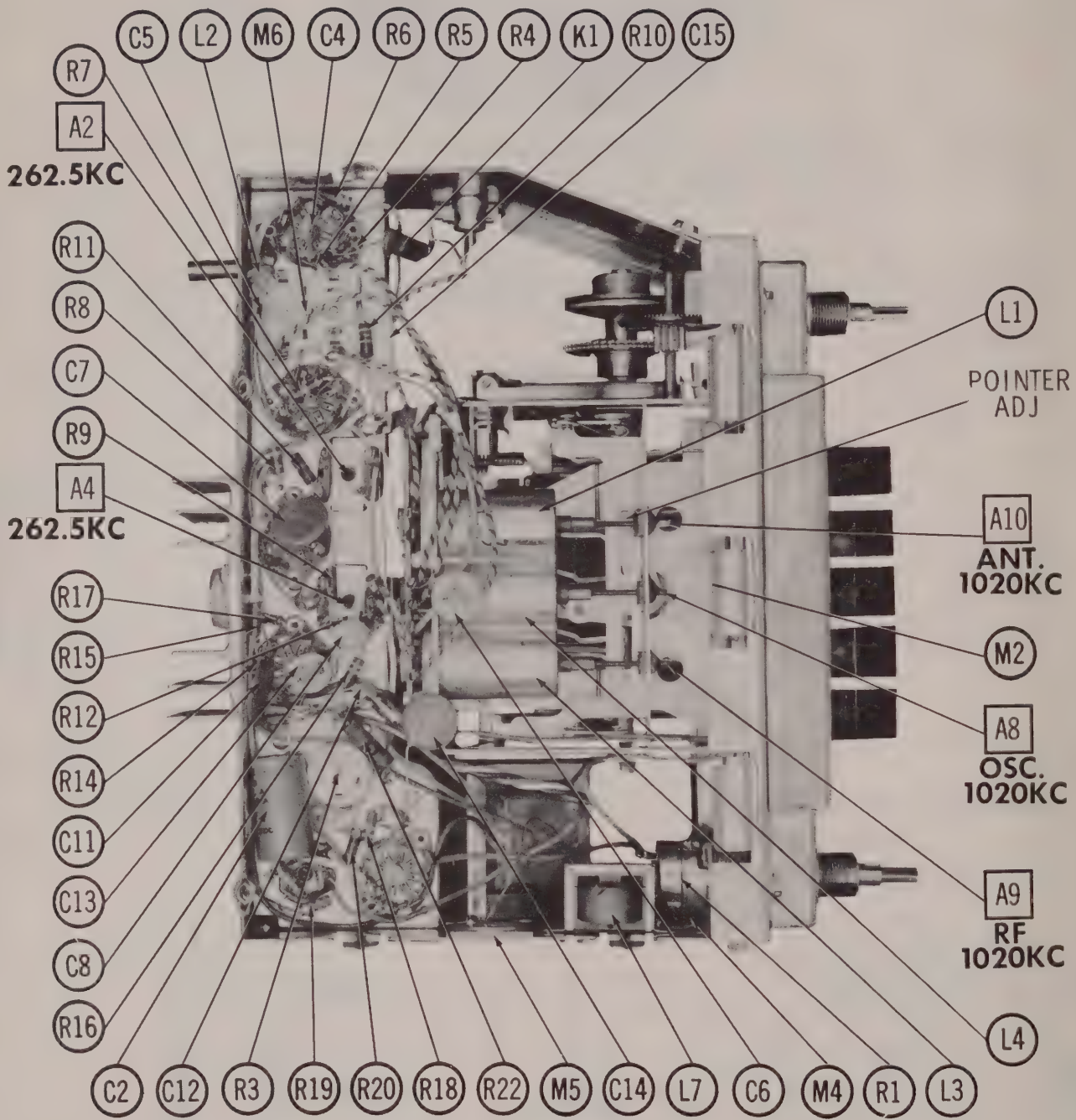


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier	12BL6	
V2	Converter	12AD6	
V3	IF Amplifier	12AF6	
V4	Det.-AVC-AF Amplifier	12AJ6	
V5	AF Amplifier	12K5	

TRANSISTORS

ITEM No.	USE	TYPE	NOTES
X1	Output	2N176	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▪500	16	23B539261	AFH2-02-10	BR5001	WP200.5			R2299 *
B	▲100	16			BBR100-15				
C2	200	3	23B539617	SRE3V200	NL200-3	TC1502	TD-250-6	MTH-0625	TE-1064

* Non-Catalog Item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C3	20-180		20B534809							
C4	18		21R120578							
C5	18		21R120578							
C6	100		21R400537	N750-SI100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	
C7	10000		21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C8	27		21R410089	NPO-SI25	TCZ-27	C10Q27C	TCO-27			
C9	68		21R400930							
C10	3300		21R120422	BPD-0033	D6-332	BYA6D33	ED-0033	UC-5233	5GA-D33	
C11	10000		21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C12	220		21R410115	BPD-00022	DD-221	L10T22	ED-220	UC-5322	5GA-T22	
C13	100		21R124032							
C14	10000		21R482726	BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C15	.02	200	8R121003	BPD-02	DD-203	CUB4S2	ED-02	GEM-412	4TM-S2	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	4Meg	1/2	18K539059	F1-82	RTV-616C	♦ QJ-1032A		Tone
B	1Meg	1/2		R2-59				Volume, Tap @ 300K
C	Switch			KB-7				
R2	3000Ω	1	18K534966		39-3000		FL-4K	Sensitivity (Wire Wound)
R3	150Ω	1	18A536645		39-150		FL-150	Bias (Wire Wound)

♦ Concentrikit Equivalent; K6-Kit, Base Elements And Shafts: B12-141, P13-116 (Panel)
B13-137X, R1-200 (Rear)
76-2 Switch

RESISTORS

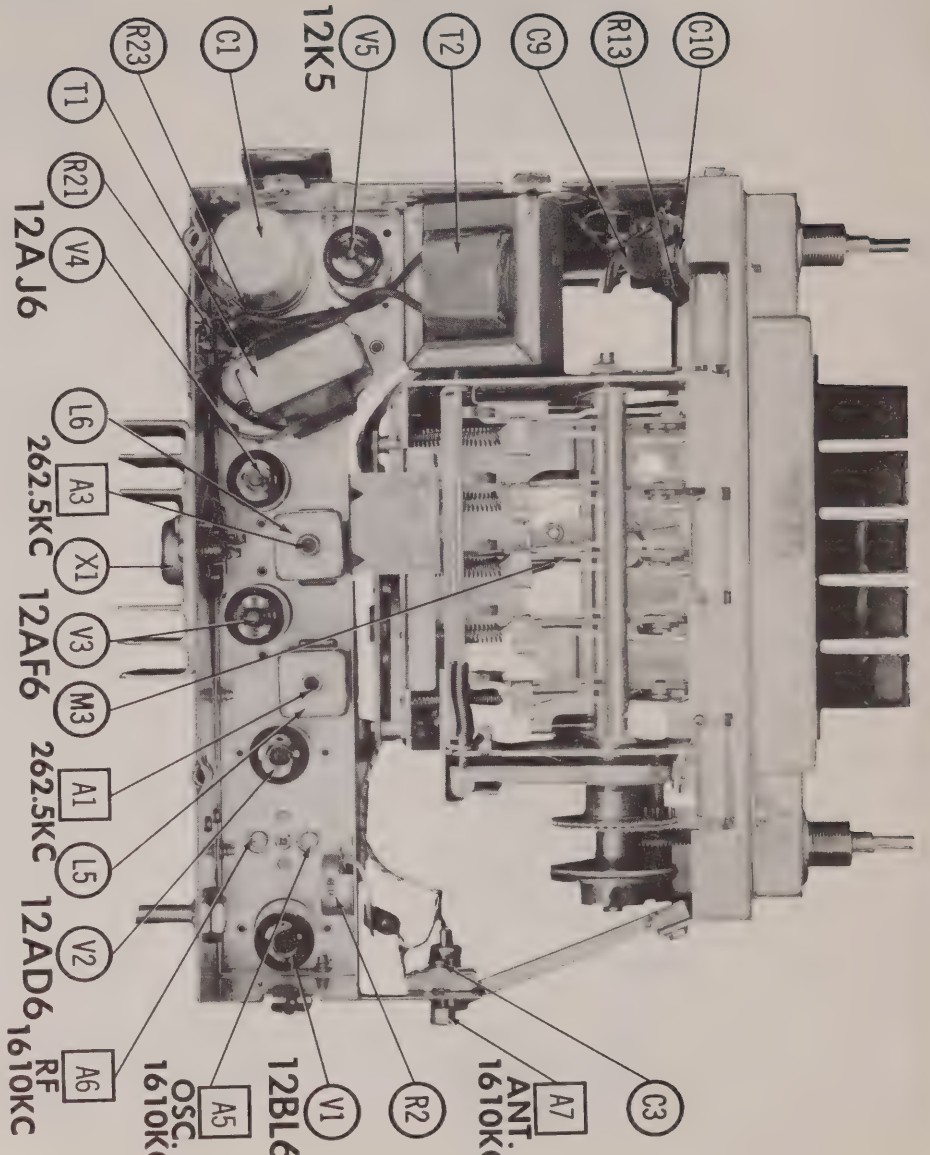
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R4	470K		6R6032	BTS-470K	
R5	1800Ω		6R2089	BTS-1800	
R6	4700Ω		6R6039	BTS-4700	
R7	2.7Meg		6R488136	BTS-2.7Meg	
R8	4.7Meg		6R6446	BTS-4.7Meg	
R9	1Meg		6R6004	BTS-1Meg	
R10	33K		6R6012	BTS-33K	
R11	10Meg		6R2109	BTS-10Meg	
R12	470K		6R6032	BTS-470K	Note #1.
R13	56K		6R6378	BTS-56K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R14	2.7Meg		6R488136	BTS-2.7Meg	
R15	1000Ω		6R6301	BTS-1000	
R16	3.3Meg		6R2118	BTS-3.3Meg	
R17	68Ω		6R6007	BTS-68	
R18	3.3Meg		6R2118	BTS-3.3Meg	
R19	120Ω		6R5551	BTS-120	
R20	15Ω		6R2034	BTS-15	
R21	470Ω		6R6090	BTS-470	
R22	10Ω	1	6R6521	BTA-10	
R23	39Ω	1	6R3961	BTA-39	

Note #1. 47K May Be Used In Some Versions (Part No. 6R6056).

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	9:5	1	25B539199						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	20Ω tapped	3-4Ω	25C539134						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	6" x 9"	PM	3-4Ω	50D538018	69A2	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Ant. Coil	24C536308				Part Of Tuner M3
L2	IF Trap	24K539616	19-3100	TV181	6112	101 Microhenries
L3	RF Coil	24C536308				Part Of Tuner M3
L4	Osc. Coil	24B536300				Part Of Tuner M3
L5	Input IF	24K537792	16-6752	BC-350	12-H1	
L6	Output IF	24K532153	16-6754	BC-354	12-H6	

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D. C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ~)	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L7	1.7A	.5Ω	6.5 Milli-henry	25K539589					

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Ant. Spark Choke	15MMF, Series Coil	24A538910	

PARTS LIST AND DESCRIPTIONS (Continued)

FUSES

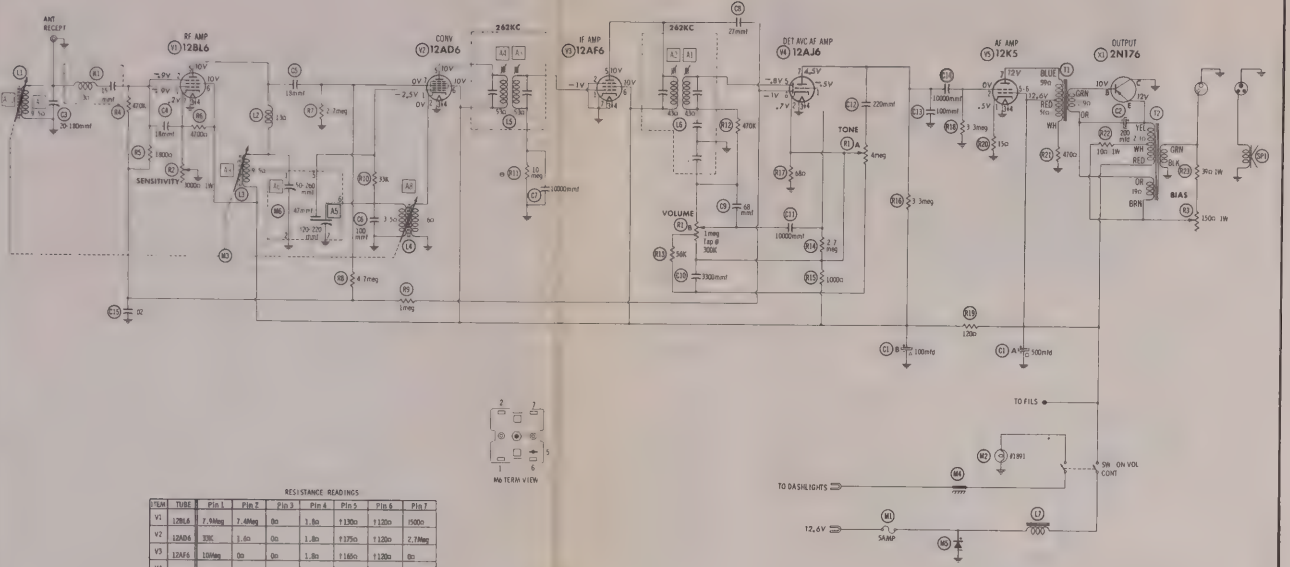
ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MOTOROLA PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	1AG	5A 32V	65R122345	9K539681	301005. (1AG5A)	155004	AGA5	HRF

MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M2	Dial Light	65T533821	#1891
M3	Tuner	77F539040	(AT-203) Complete Assembly
M4	Spark Plate	64K530177	
M5	Spark Plate	48A539147	Selenium Type, Use Bushing Part #43A539259, Eyelet Part #5K124633, Washer Part #4A540423.
	Spark Plate	48K539953	(Alternate) Selenium Type, Use Bushing Part #43A539954, Part # 5K124848
M6	Trimmer	20B539612	Includes A5 (Osc.) 120-220MMF, A6 (RF) 50-260MMF, 47MMF
	Glass	34C539063	
	Pointer	1A538977	
	Pushbuttons	38B538979	5 Used
	Knob	36B539472	On-Off-Volume, Tuning
	Knob	36B539476	Tone
	Cover	15C539068	Bottom
	Cover	15C539071	Top

BIAS ADJUSTMENT

Transistor emitter current should be checked when the transistor is replaced. To do this, connect the positive lead of a VTVM to the tap (white lead) of T2 primary and the negative lead to the high side (yellow lead) of T2 primary. With a power source of 12 volts DC operating the receiver, adjust R3 for a reading of .82 volts on the VTVM.



BOTTOM VIEW

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BL6	7.4Meg	7.4Meg	0Ω	1.8Ω	†130Ω	†120Ω	†500Ω
V2	12AD6	33K	1.6Ω	0Ω	1.8Ω	†175Ω	†120Ω	2.7Meg
V3	12AF6	10Meg	0Ω	0Ω	1.8Ω	†165Ω	†120Ω	0Ω
V4	12AJ6	2.7Meg	68Ω	0Ω	1.8Ω	1.2Meg	8.4Meg	†3.3Meg
V5	12K5	15Ω	3.3Meg	0Ω	.6Ω	†0Ω	†0Ω	†40Ω

† MEASURED FROM JUNCTION OF C1A AND ON-OFF SWITCH
TRANSISTOR RESISTANCE READINGS NOT TAKEN BECAUSE OF THE WIDE VARIATIONS IN INTERNAL RESISTANCE

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt
2. Socket connections shown as bottom views
3. Measured values are from socket pin to common negative.
4. Battery voltage maintained at 12.6 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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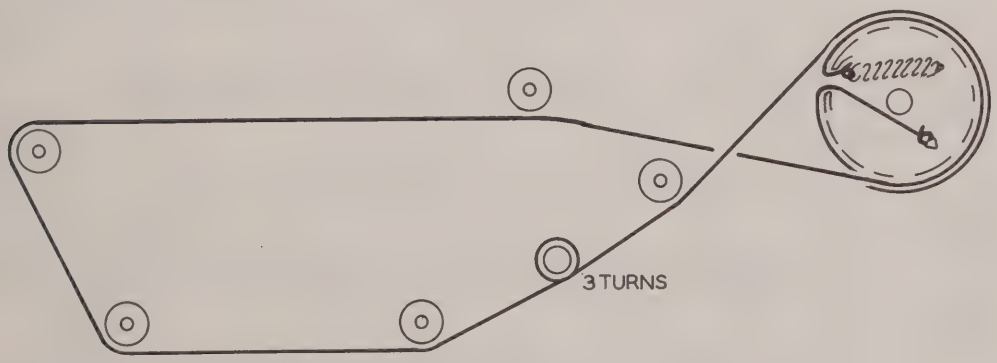
DENVER, COLORADO

HARMAN-KARDON
MODEL FM-100

HARMAN-KARDON
MODEL FM-100

TRADE NAME	Harman-Kardon Model FM-100
MANUFACTURER	Harman-Kardon, Inc., 520 Main St., Westbury L. I., New York
TYPE SET	AC Operated FM Tuner
TUBES (Eight)	Types 6BK7A RF Amp., 12AT7 Osc. AFC, 6BA6 1st IF Amp., 6AU6 2nd IF Amp., 6AU6 Limiter, 6AL5 Disc., 12AU7A Squelch Amp. -Cath. Follower, 6C4 Meter Amp.
POWER SUPPLY	105-125 Volts AC - 60 Cycles RATING .36 Amp. @ 117 Volts AC (32 Watts)
FREQ.MOD.	88MC - 108MC

TUNING GANG FULLY CLOSED



DIAL CORD STRINGING

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	RF Amplifier-Mixer	6BK7A	
V2	Oscillator-AFC	12AT7	
V3	1st IF Amplifier	6BA6	
V4	2nd IF Amplifier	6AU6	
V5	Limiter	6AU6	
V6	Discriminator	6AL5	
V7	Squelch Amp. -Cathode Follower	12AU7A	
V8	Meter Amplifier	6C4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	Harman-Kardon PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▪40	150	JE781436C						
B	▪60	150							
C	60	150							
C2	4	150		PRS150V4	BBR4-150	TC40	TD-4-150	FM-1504	TVA-1412

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	Harman-Kardon PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C3	470			BPD-00047	D6-471	LT6T47	GP-470	UC-5347	5GA-T47	
C4	47			N750-SI 47	TCN-47	C10Q47U	TC7-47	NT-5447	5TCU-Q47	
C5	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C6	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C7	. 68				TCZ-R68					
C8	2. 2			NP0-SI 2. 2	TCZ-2R2	C10V22C	TCO-2. 2		5TCCB-V22	
C9	100			N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	
C10	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C11	1-10		JV20688							
C12	10			N750-SI 10	TCN-10	C10Q1U	TC7-10	NT-541	5TCU-Q1	
C13	10			SI 10	D6-100	L10Q1	GP-10	UC-541	5GA-Q1	Note 1
C14	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C15	2500			SI 2500	D6-252	BYA10D25	ED-0025	UC-5225	5GA-D25	
C16	. 05	200		BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C17	10			SI 10	D6-100	LT6Q1	GP-10	UC-541	5GA-Q1	
C18	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C19	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C20	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C21	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C22	47			N750-SI 47	TCN-47	C10Q47U	TC7-47	NT-5447	5TCU-Q47	
C23	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C24	47			N750-SI 47	TCN-47	C10Q47U	TC7-47	NT-5447	5TCU-Q47	
C25	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C26	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	Note 1
C27	100			N750-SI 100	TCN-100	C10T1U	TC7-100	NT-531	5TCU-T1	
C28	100			BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C29	. 1	200			DF-104	BC2P1J		ACE401	2SE-P1	
C30	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C31	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C32	. 1	200			DF-104	BC2P1J		ACE401	2SE-P1	
C33	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C34	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C35	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	
C36	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C37	470			BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C38	. 05	200		BPD-05	DF-503	BC2S47J		ACE615	2SE-S47	
C39	10000			BPD-01	DD-103	BYA6S1	ED-01	DC511	5HK-S1	

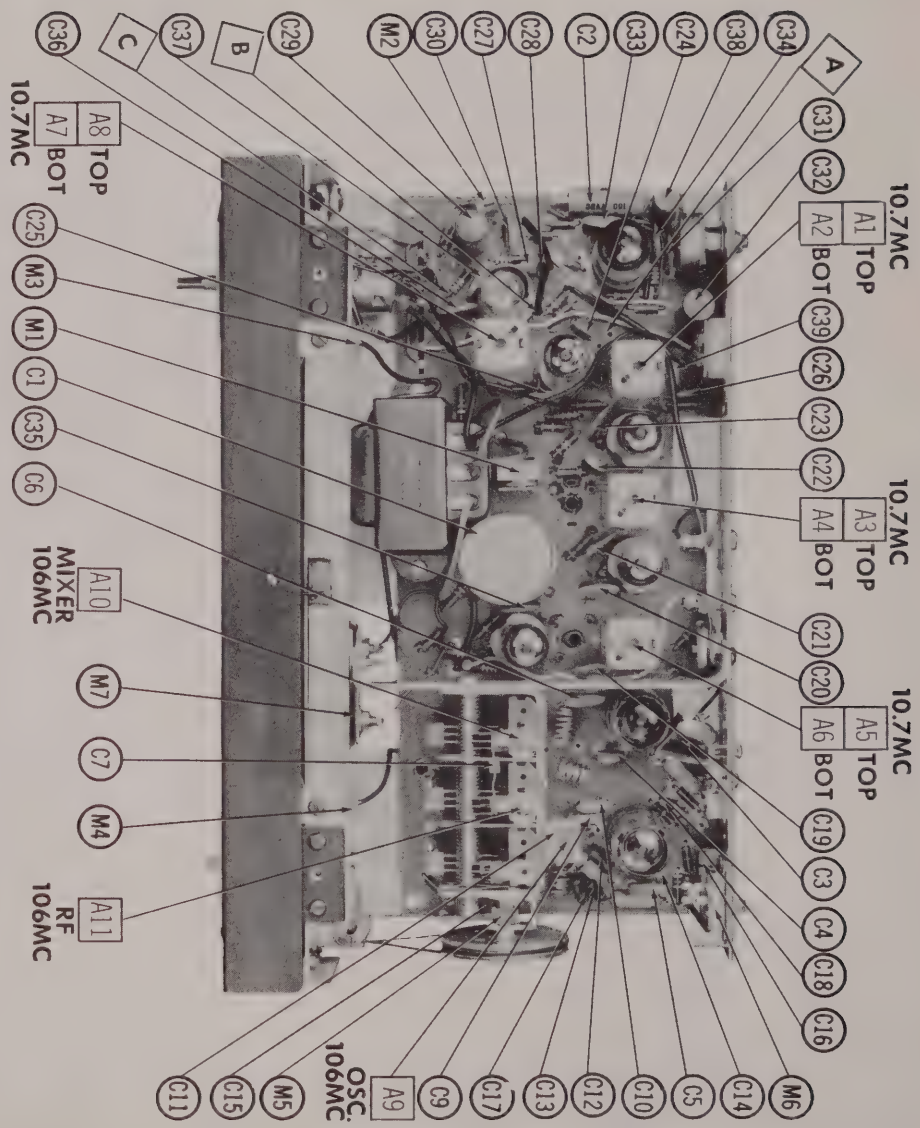
Note 1: Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	Harman-Kardon PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	1/2	RV1041675	F1-68			UF26A	AFC
B	5000Ω	1/2		R2-19		♦	UR53L	ANG (Auto Noise Gate)
C	Switch			KB-1			US-26	
R2	1Meg	1/2	RV811600					Level
R3A	2000Ω	1/2	RV1041678			B11-110	TA152L	Meter Adjust
B	Shaft					TM1-Kit	Not Req.	

♦ Concentrikit Equivalent; K-2 Kit, Base Elements & Shafts: B13-139, P1-123 Panel B11-114, R1-205 Rear, 76-1 Switch

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Harman-Kardon PART No.	IRC PART No.	
R4	68Ω			BTS-68	
R5	3.3Meg			BTS-3.3Meg	
R6	15K			BTS-15K	
R7	22K			BTS-22K	
R8	1000Ω			BTS-1000	
R9	100Ω			BTS-100	
R10	470K			BTS-470K	
R11	3.3Meg			BTS-3.3Meg	
R12	1000Ω			BTS-1000	Note #1.
R13	1Meg			BTS-1Meg	
R14	1000Ω			BTS-1000	
R15	100K			BTS-100K	
R16	1000Ω			BTS-1000	
R17	1000Ω			BTS-1000	
R18	100K			BTS-100K	
R19	15K			BTS-15K	
R20	2200Ω			BTS-2200	
R21	33K			BTS-33K	
R22	100K			BTS-100K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	Harman-Kardon PART No.	IRC PART No.	
R23	100K			BTS-100K	
R24	100K			BTS-100K	
R25	1Meg			BTS-1Meg	
R26	100K			BTS-100K	
R27	2200Ω			BTS-2200	
R28	470K			BTS-470K	
R29	1Meg			BTS-1Meg	
R30	10K			BTS-10K	
R31	47K			BTS-47K	
R32	6800Ω			BTS-6800	
R33	47K			BTS-47K	
R34	1Meg			BTS-1Meg	
R35	68K			BTS-68K	
R36	68K			BTS-68K	
R37	1000Ω			BTS-1000	
R38	33K			BTS-33K	
R39	47K			BTS-47K	Note #2.
R40	330Ω			BTS-330	
R41	330Ω			BTS-330	

Note #1. 560Ω Used In Some Versions.

Note #2. Not Used In All Versions.

TRANSFORMER (POWER)

ITEM No.	RATING				REPLACEMENT DATA					
	PRI.	SEC. 1	SEC. 2	SEC. 3	Harman-Kardon PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC @ .36A	120VAC @ .037A tap @ 6.3VAC @ 2.45A			FT781419G					

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		Harman-Kardon PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Antenna Coil					.24 Microhenry; IRC Part #CLA
L2	RF Choke					3.3 Microhenries; IRC Part #CLA
L3	RF Coil	GL781543				
L4	FM Osc. Coil	GL781544				
L5	Cath. Choke		19-1000		4602	1 Microhenry; IRC Part #CLA
L6	Mixer Coil	GL781543				
L7	1st FM IF	GT781491A	16-3490			
L8	RF Choke					3.3 Microhenries; IRC Part #CLA
L9	2nd FM IF	GT781570A	16-3490			
L10	FM Limiter	GT781570A	16-3490			
L11	FM Discr.	GT781492B	17-3491			
L12	RF Choke	GC1041697				50 Microhenries

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	Harman-Kardon PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.037A	Z781490A		RS065Q		8J1B	50	

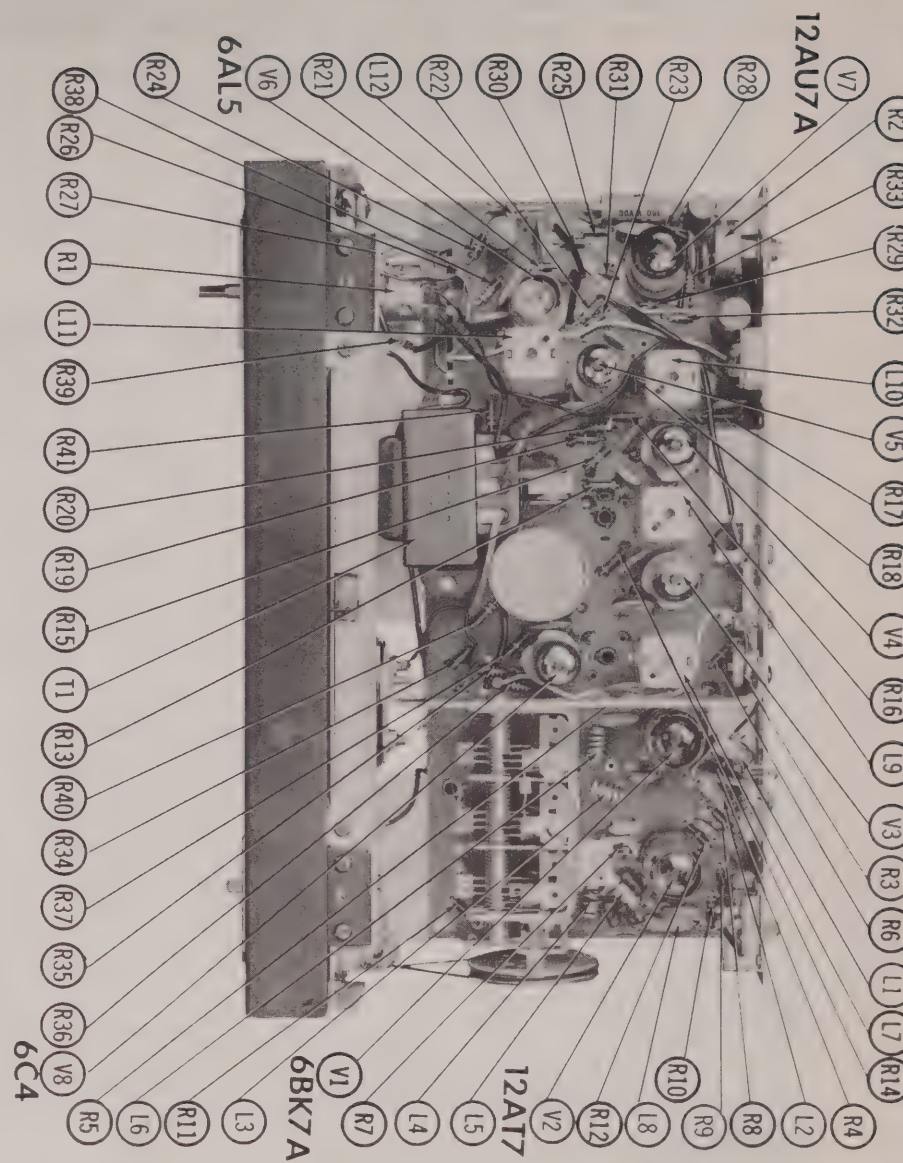
CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		Harman-Kardon PART No.	SYLVANIA PART No.	
M2	1N34A	SC1041698	1N34A	Bias Rectifier (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	Harman-Kardon PART No.	NOTES
M3	Pilot Light		#51
M4	Pilot Light		#51
M5	Tuning Cap	JV1041673A	3 Gang
M6	Switch	ES621350	Rumble Filter, Slide Type (SPST)
M7	Meter	Z1041686	

CHASSIS—TOP VIEW



ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to FM RF stator lug on tuning gang. Low side to chassis.	10.7MC (unmod)	Point of non-interference.	DC probe to point (A). Common to chassis.	A1, A2, A3, A4, A5, A6	Adjust for maximum deflection.
2.	"	"	"	"	DC probe to point (B). Common to chassis.	A7	"
3.	"	"	"	"	DC probe to point (C). Common to chassis.	A8	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to FM RF stator lug on tuning gang. Low side to chassis.	10.7MC (450KC Swp)	Point of non-interference.	Vert. amp. to point (A). Low side to chassis.	A1, A2, A3, A4, A5, A6	Adjust for curve of maximum amplitude and symmetry similar to Fig. 1.
2.	"	"	"	"	Vert. amp. thru 100K to point (B). Low side to chassis.	A7	"
3.	"	"	"	"	Vert. amp. to point (C). Low side to chassis.	A8	Adjust so that 10.7MC occurs at center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
4.	270Ω carbon resistor	High side thru 270Ω to FM antenna terminal. Low side to chassis.	106MC	106MC	DC probe to point (A). Common to chassis.	A9, A10, A11	Adjust for maximum deflection.
5.	"	"	90MC	90MC	"	L3, L4, L5	Adjust for maximum deflection by compressing or expanding coil turns. Repeat steps 4 and 5 until no further improvement can be made.

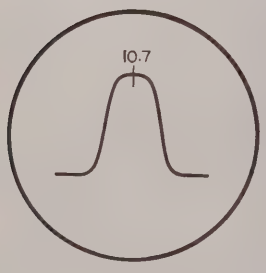


FIG. 1

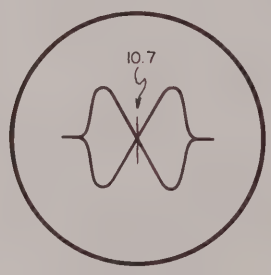
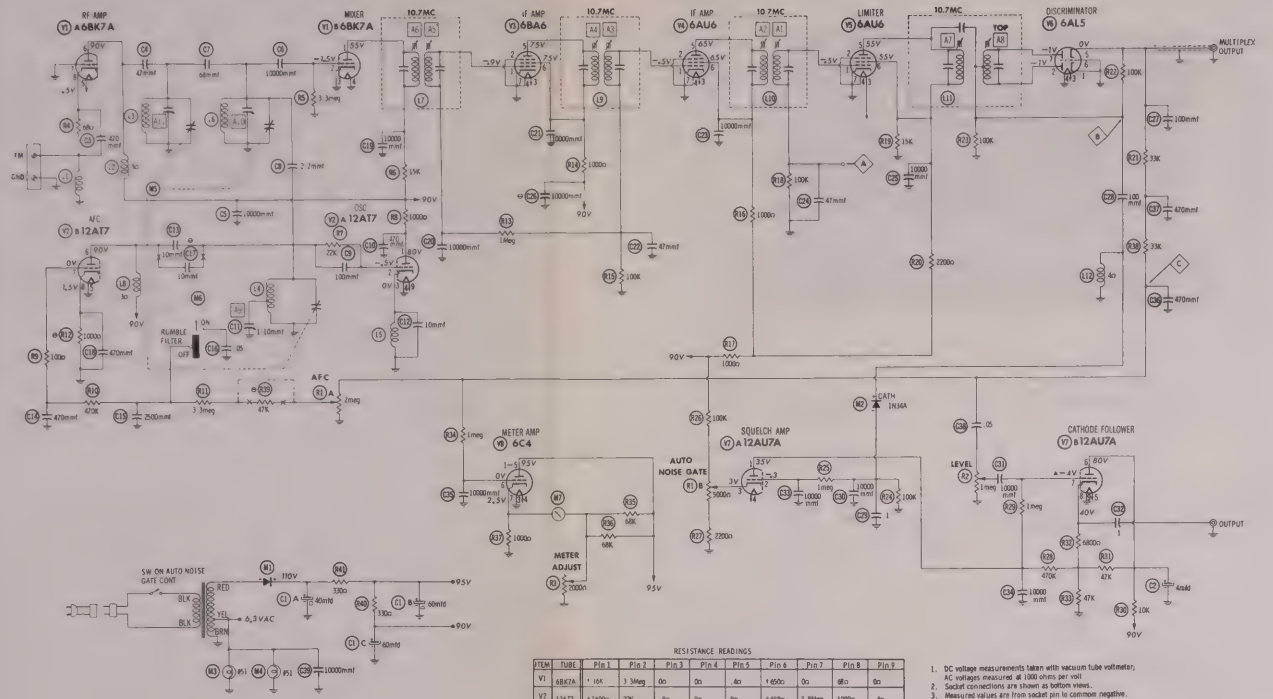


FIG. 2



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BK7A	↑ 16K	3 3Meg	0Ω	0Ω	4Ω	↑ 650Ω	0Ω	6Ω	0Ω
V2	12AT7	↑ 1600Ω	22K	∞	0Ω	0Ω	↑ 650Ω	3.8Meg	1000Ω	4Ω
V3	6BA6	1 1Meg	0Ω	4Ω	0Ω	↑ 1600Ω	↑ 1600Ω	0Ω		
V4	6AL6	100K	0Ω	4Ω	0Ω	↑ 2500Ω	↑ 2500Ω	0Ω		
V5	6AU6	100K	0Ω	4Ω	0Ω	↑ 3800Ω	↑ 3800Ω	0Ω		
V6	6AL5	0Ω	100K	4Ω	0Ω	180K	0Ω	100K		
V7	12AU7A	↑ 560K	1Meg	5200Ω	4Ω	4Ω	↑ 10K	1 5Meg	38K	0Ω
V8	6C4	↑ 330Ω	NC	0Ω	4Ω	↑ 330Ω	1 2Meg	800Ω		

↑ MEASURED FROM OUTPUT OF M1
NC NO CONNECTION
▲ MEASURED FROM PIN 8 OF V7

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings
6. Volume control at maximum, no signal applied for voltage measurements

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

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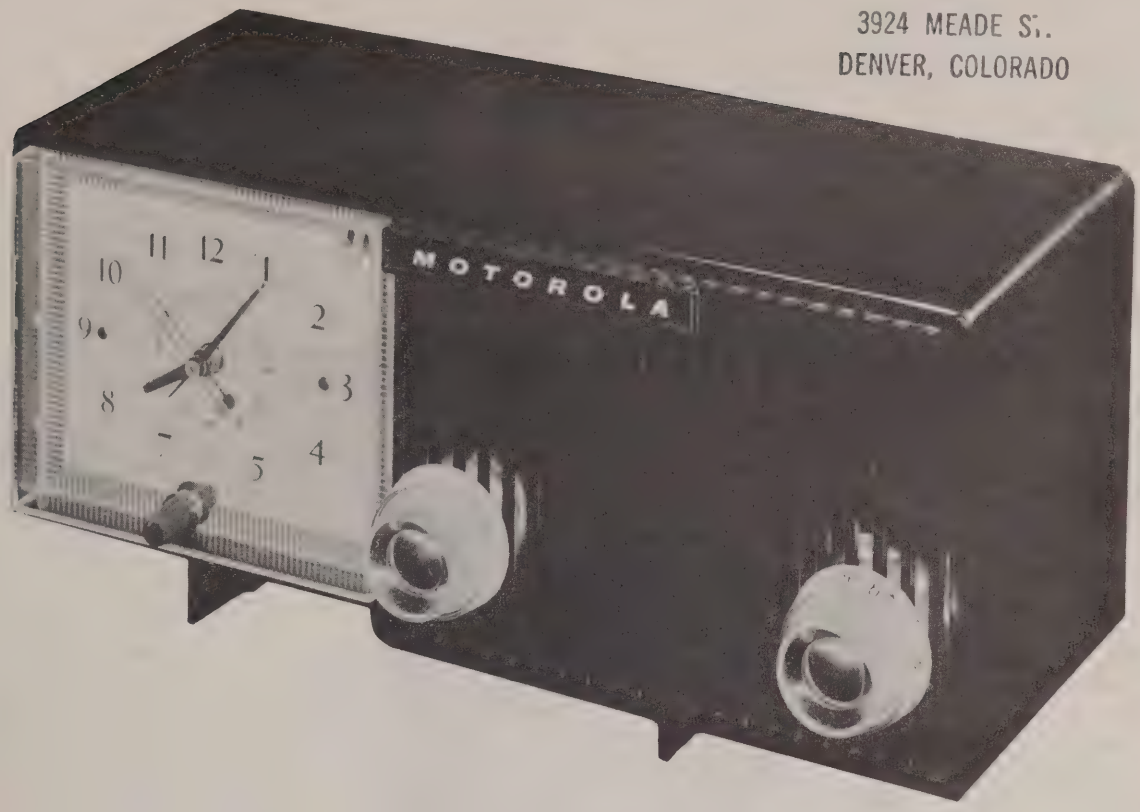
MOTOROLA MODEL
57CE (Ch. HS-530)



MOTOROLA MODEL
57CE (Ch. HS-530)

TRADE NAME	Motorola Model 57CE (Ch. HS-530)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Ill.
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AV6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles — RATING .3 Amp. @ 117 Volts AC (27 Watts Without Clock)
TUNING RANGE—BROADCAST	535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"

"The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed."
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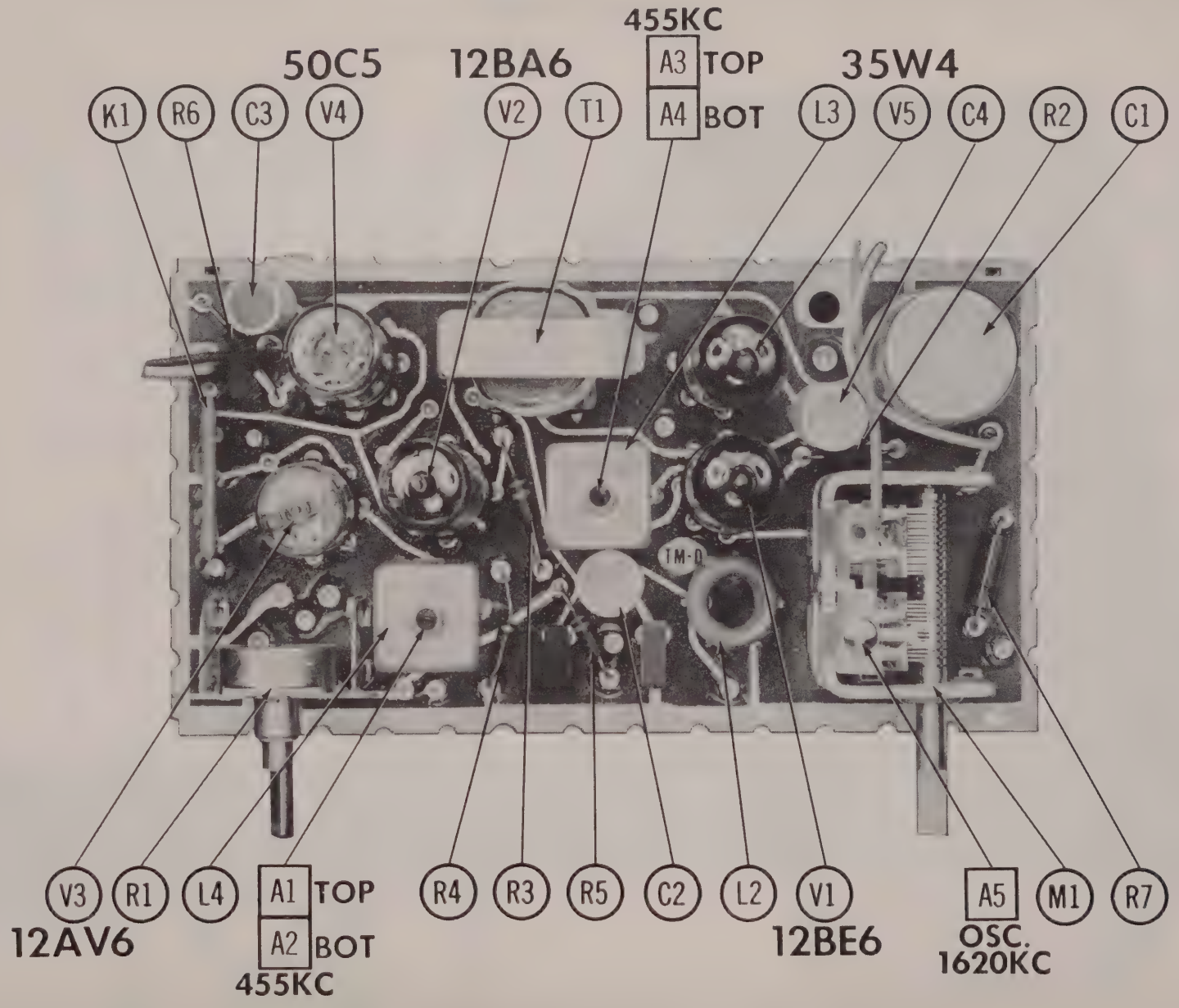


CHASSIS-TOP VIEW

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amplifier	12AV6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■50	150	23B632015	AFH2-15	B0150	FP213	TMD-12	D-065	TVL-2432
B	▲30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	200	8B120842	BPD-05	DF-503	BC2S47J		ACE6147	2SE-S47	
C3	.03	400	8K122983	BPD-03	DF-303	BC6S33J			4SE-S33	
C4	.05	400	8K121268	BPD-05	DF-503	BC6S47J		ACE6147	4SE-S47	

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	1Meg	½	18K633692					Volume

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA MOTOROLA PART No.	IRC PART No.	NOTES
R2	22K		6R6028	BTS-22K	
R3	3.3Meg		6R2118	BTS-3.3Meg	
R4	150Ω		6K124797	BTS-150	
R5	3.3Meg		6R2118	BTS-3.3Meg	
R6	150Ω		6R3992	BTS-150	
R7	1000Ω	1	6B119404	BTA-1000	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	2400Ω	3-4Ω	25B632025		A-3025 ①			S-12X ①	① Use original channel mtg.

PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA MOTOROLA PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	50C632031	4A07	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L1	Loop Ant.	1V635974				Includes cabinet back, AC cord.
L2	Osc. Coil	24B631990				
L3	Input IF	24K632782				
L4	Output IF	24K632039				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MOTOROLA PART No.	REPLACEMENT DATA
K1	Det. -Audio Net	5000MMF, 220MMF, 250MMF, 5000MMF, 470K, 470K, 6.8Meg	51B635833	Aerovox PA-512 Centralab PCT-158 Sprague DT-5

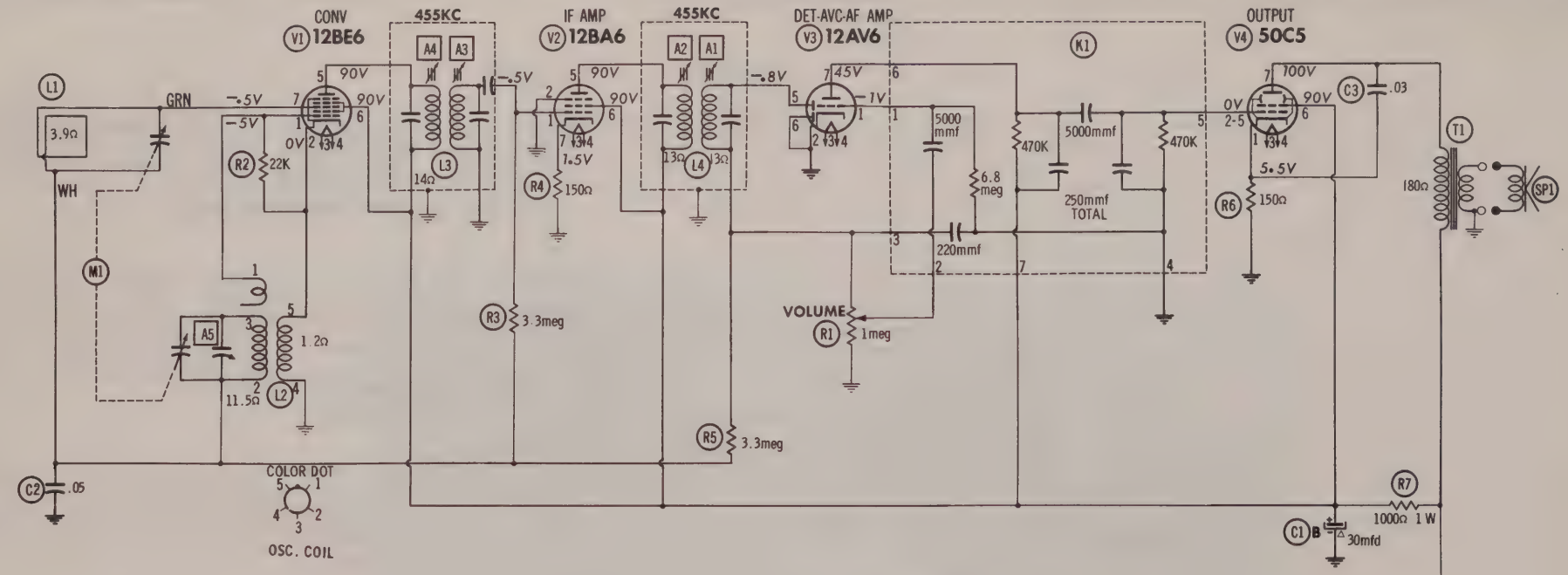
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Tuning Cap	19B632026	2 Gang
M2	Clock	72K635652	Telechron
	Clock	72D636228	International Register
	Crystal	61K633607	Clock
	Knob	36K636606	Operation Selector
	Knob	36C633612	Tuning
	Knob	36K633614	Volume
	Cabinet	1V635138	

SET 353 FOLDER 8

MOTOROLA MODEL 57CE (Ch. HS-530)

MOTOROLA MODEL 57CE (Ch. HS-530)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

THROUGH CAMS & LINKAGES ONE SWITCH PERFORMS ALL FUNCTIONS OF ON-OFF-AUTO AND SLEEP.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1.2Ω	28Ω	14Ω	†1000Ω	†1000Ω	4.3Meg
V2	12BA6	7.6Meg	0Ω	28Ω	40Ω	†1000Ω	†1000Ω	150Ω
V3	12AV6	6.8Meg	0Ω	0Ω	14Ω	1Meg	0Ω	†470K
V4	50C5	150Ω	470K	40Ω	90Ω	470K	†1000Ω	†180Ω
V5	35W4	NC	NC	90Ω	125Ω	125Ω	120Ω	30K

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

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MOTOROLA MODELS
57W1, B, MC, (Ch. HS-525)

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

MOTOROLA MODELS
57W1, B, MC, (Ch. HS-525)

MOTOROLA MODELS
57W1, B, MC, (Ch. HS-525)

TRADE NAME	Motorola Models 57W1, 57W1B, 57W1MC (Ch. HS-525)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12CR6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-DC
RATING	.28 Amp. @ 117 Volts AC (25 Watts)
TUNING RANGE—BROADCAST	535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to pin 7 (grid) of 12BE6 (V1) Low side to B-.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

MOTOROLA
MODEL 57W1 (Ch. HS-525)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amplifier	12CR6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	40	150	23B634167	PRS150V40-3020	BBRT43215	TCT3285	TDLT-3	FMT-312	TVA-3448
B	30	150							
C	30	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	MOTOROLA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	100		21R400537	N750-SI100	TCN-100	L10T1U	TC7-100	NT-531	5TCU-T1	
C3	.05	200	8R121005	BPD-05	DF-503	CUB2S5		GEM-415	2TM-S5	
C4	.006	400	8R121001	BPD-006	D6-602	CUB6D6	GP-6000	GEM-626	6TM-D6	
C5	.006	400	8R121001	BPD-006	D6-602	CUB6D6	GP-6000	GEM-626	6TM-D6	
C6	100		21R400537	N750-SI100	TCN-100	L10T1U	TC7-100	NT-531	5TCU-T1	
C7	.05	400	8R121567	BPD-05	DF-503	CUB4S5		GEM-415	4TM-S5	
C8	.01	200	8R121868	BPD-01	D6-103	CUB4S1	GP-10000	GEM-411	4TM-S1	
C9	10000		21R121946	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C10	.047	400	8K490232	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C11	.1	600	8R121869	P688N-1	DF-104	CUB6P1		GEM-601	6TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	18K635629	BT-65	A47F5-500K	Q19-133X	UT-431	Volume, Tap at 250K
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

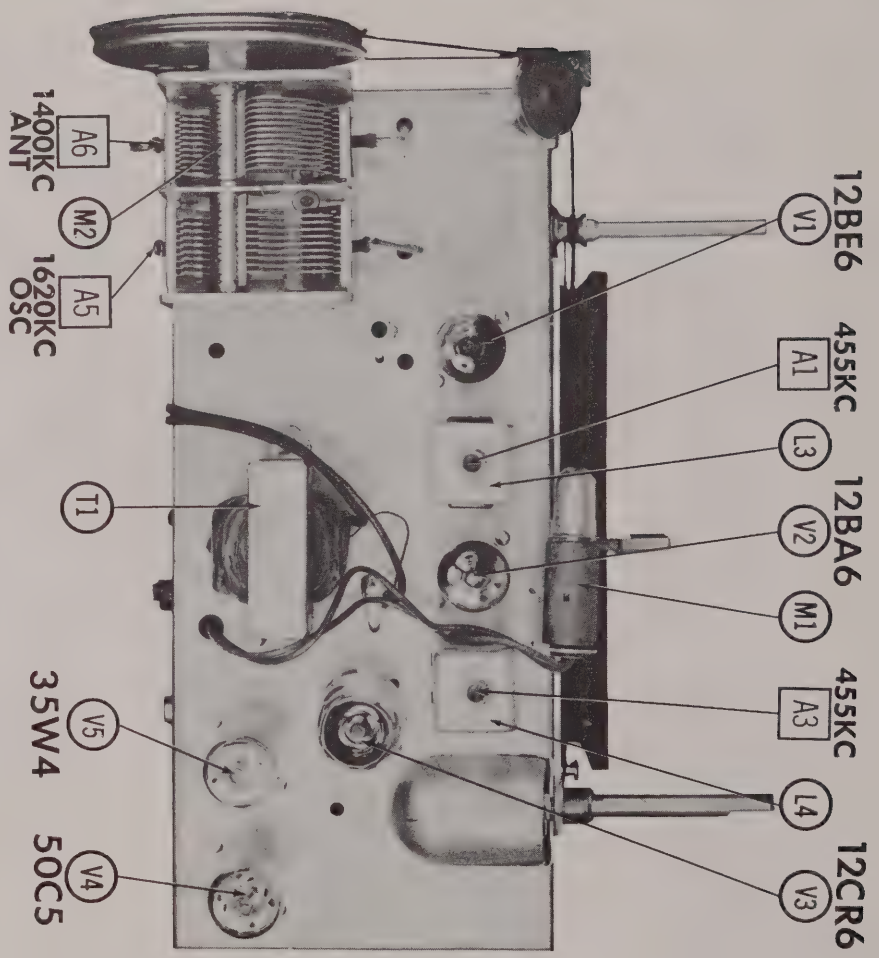
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R2	470K		6R6032	BTS-470K	
R3	22K		6R6028	BTS-22K	
R4	82Ω		6R2035	BTS-82	
R5	2.2Meg		6R3927	BTS-2.2Meg	
R6	33K		6R6012	BTS-33K	
R7	33K		6R6012	BTS-33K	
R8	39K		6R6487	BTS-39K	
R9	2.2Meg		6R3927	BTS-2.2Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	MOTOROLA PART No.	IRC PART No.	
R10	100K		6R6075	BTS-100K	
R11	470K		6R6032	BTS-470K	
R12	470K		6R6032	BTS-470K	
R13	150Ω		6R6373	BTS-150	
R14	390Ω	1	6R5598	BTA-390	
R15	390Ω	1	6R5598	BTA-390	
R16	15Ω		6R2034	BTS-15	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	MOTOROLA PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2650Ω	3-4Ω	25C634161	Z1001	A-3025	A-3876	24S45	S-1X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

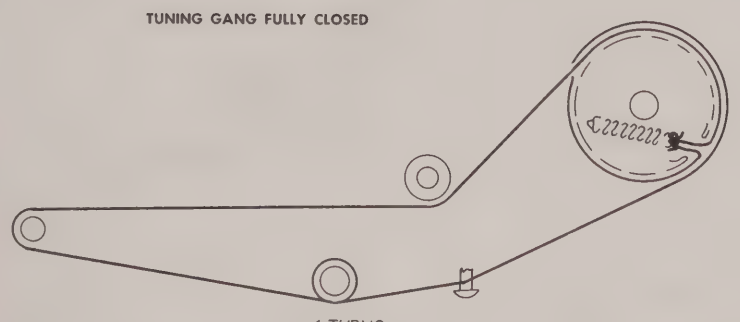
ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	50C634311	4A07 ①	① Trim corners to match original.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	1V635907				Includes Cabinet Back
L2	Osc. Coil	24B634118			69-OSC	
L3	Input IF	24C632774	16-6758	BC-352	12-C1	
L4	Output IF	24K632775	16-6770	BC-353	12-C6	

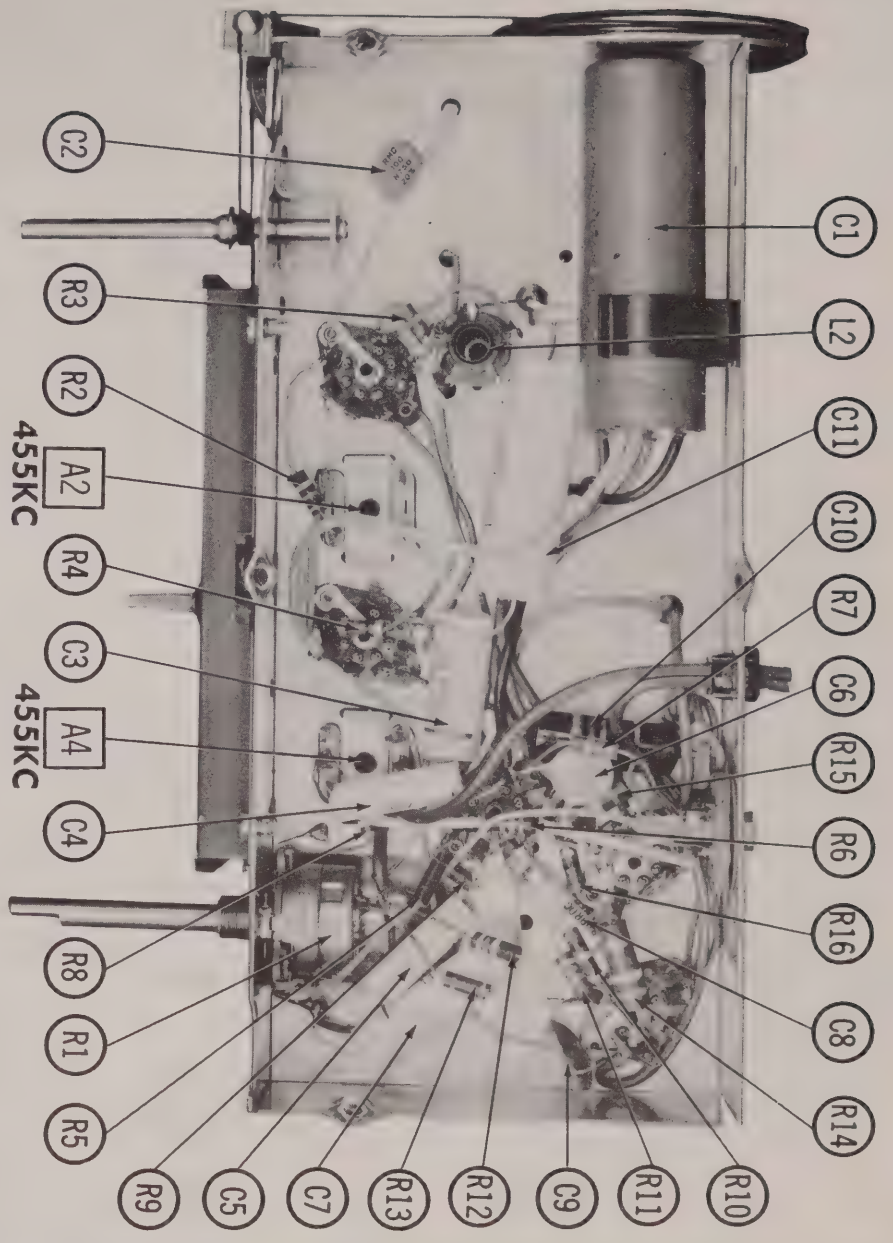
MISCELLANEOUS

ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M1	Dial Light	65X11854	#47
M2	Tuning Cap	19B634158	2 Gang (16-390MMF, 24-145MMF)
	Pointer	52K634509	Dial
	Bezel	13C634072	
	Glass	1V636375	Includes Mask
	Knob	36K634194	Tuning
	Knob	36K634196	On-Off-Volume
	Cabinet	1V636639	Model 57W1B
	Cabinet	1V636477	Model 57W1MC
	Cabinet	1V636638	Model 57W1

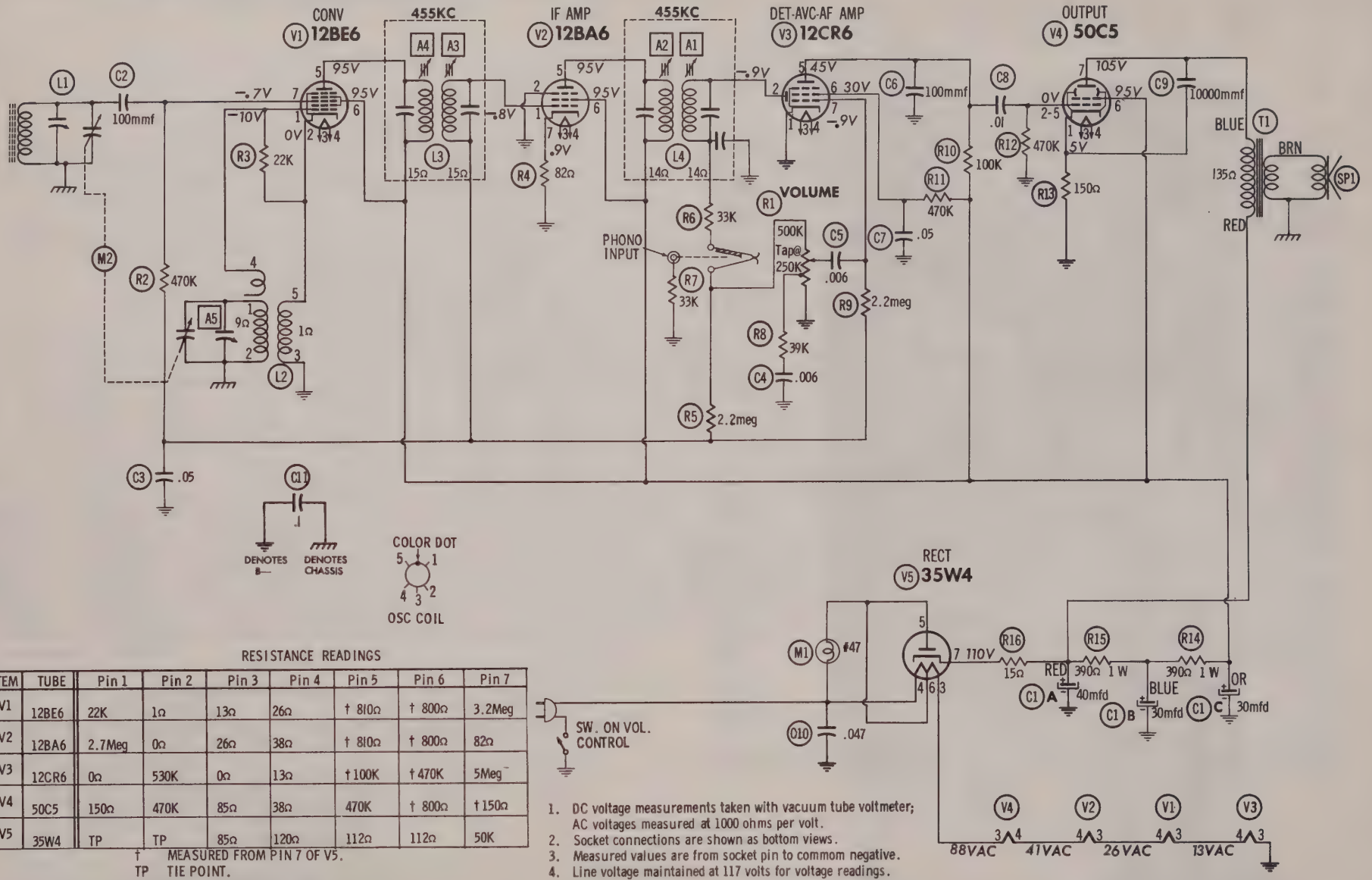


DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



MOTOROLA
MODEL 57W1 (Ch. HS-525)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1Ω	13Ω	26Ω	† 810Ω	† 800Ω	3.2Meg
V2	12BA6	2.7Meg	0Ω	26Ω	38Ω	† 810Ω	† 800Ω	82Ω
V3	12CR6	0Ω	530K	0Ω	13Ω	†100K	†470K	5Meg
V4	50C5	150Ω	470K	85Ω	38Ω	470K	† 800Ω	†150Ω
V5	35W4	TP	TP	85Ω	120Ω	112Ω	112Ω	50K

† MEASURED FROM PIN 7 OF V5.
TP TIE POINT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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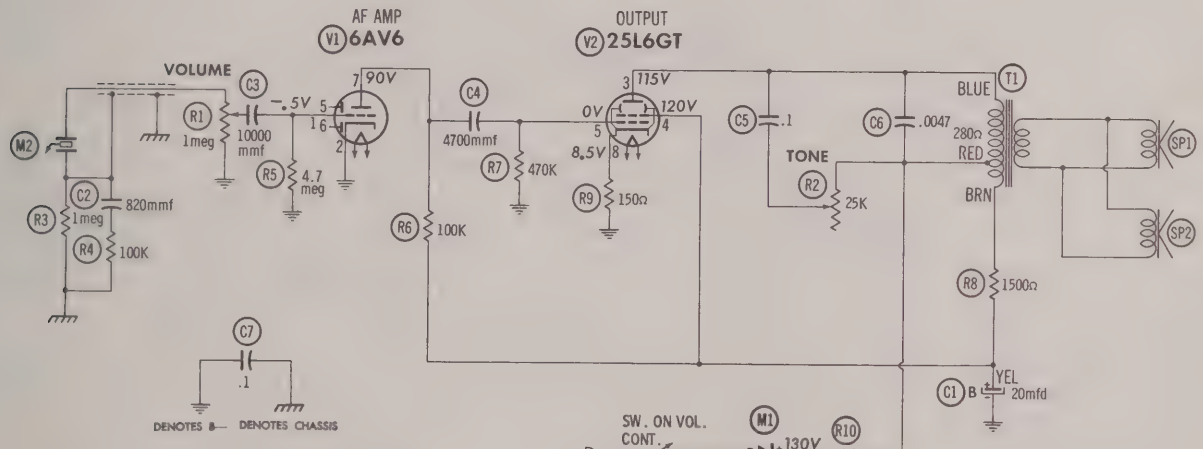
RCA VICTOR MODELS
7-EMP-1J, 7-EMP-1K (Ch. RS-152C)

TRADE NAME	RCA Victor Models 7-EMP-1J, 7-EMP-1K (Ch. RS-152C)
MANUFACTURER	RCA Victor Radio & "Victrola" Div., Radio Corp. of America, Camden 8, N. J.
TYPE SET	AC Operated Phono Amplifier With 3 Speed Manual Record Player
TUBES (Two)	Types 6AV6 AF Amplifier, 25L6GT Output
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .42 Amp. @ 117 Volts AC



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
V1	6AV6	4.7Meg	0Ω	0Ω	5Ω	NC	NC	† 100K	
V2	25L6GT	NC	5Ω	† 300Ω	† 1500Ω	470K	TP	30Ω	150Ω

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION.
TP TIE POINT.

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	6AV6	

ITEM No.	USE	TYPE	NOTES
V2	Output	25L6GT	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	80	150	102010	PRS150V2080	BBRT44215	TCT3116	TML-6	FMT-315	TVA-2460
B	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	820		102356	SI820	D6-821	K067	GP-820		5GA-T82	
C3	10000		73960	BPD-01	DD-103	K082	ED-01	DC-511	5HK-S1	
C4	4700		73473	BPD-0047	DD-472	K079	ED-0047	DC-525	5HK-D47	
C5	.1	400	73551	P488N-1	DF-104	CUB4P1		PT401	4TM-P1	
C6	.0047	600	73920	BPD-0047	D6-472	CUB6D47	GP-4700	PT6247	6TM-D47	
C7	.1	400	73551	P488N-1	DF-104	CUB4P1		PT401	4TM-P1	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	101948					Volume
B	Switch							
R2	25K	½	101947					Tone

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.	
R3	1Meg		502510	BTS-1Meg	
R4	100K		502410	BTS-100K	
R5	4. 7Meg		30931	BTS-4. 7Meg	
R6	100K		502410	BTS-100K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	RCA Victor PART No.	IRC PART No.	
R7	470K		502447	BTS-470K	
R8	1500Ω		502215	BTS-1500	
R9	150Ω		502115	BTS-150	
R10	22Ω		502022	BTS-22	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2800Ω	3-4Ω	100272	Z1103 ①	A-3031 ①	A3336 ①	24S50A ①	S-16X ①	① Drill new mtg. hole

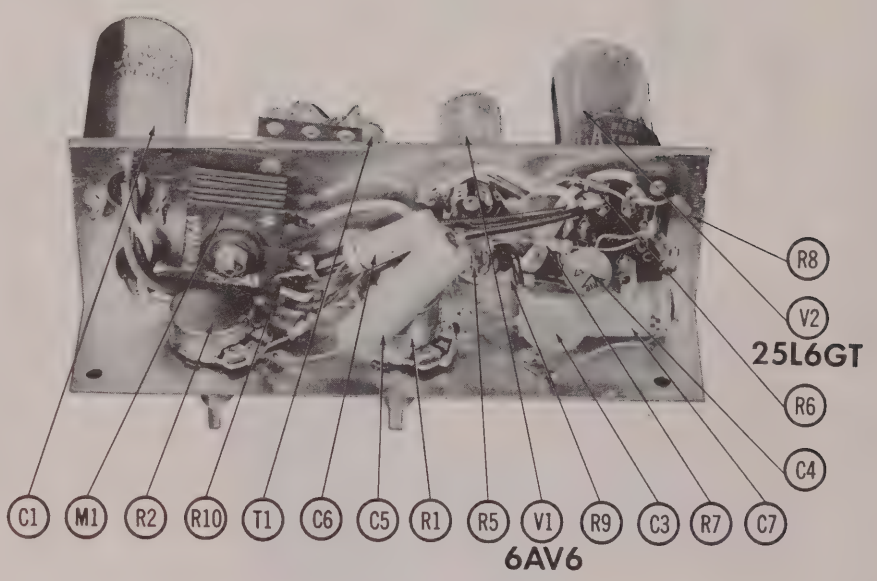
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	RCA Victor PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	79696	4A07	
SP2	4"	PM	3-4Ω	79696	4A07	

SELENIUM RECTIFIER

ITEM No.	RATING	REPLACEMENT DATA						NOTES
	CURRENT	RCA Victor PART No.	FEDERAL PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.	
M1	.048A	77958	1003A	RS075	6875	5M4	75	

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	RCA Victor PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M2	102321 ①	40-TB	A-1 and A-3	56 2446 ②	PT-1	① Complete with knob, styli ② Complete tone arm & cartridge ass'y.

ASTATIC NEEDLE LISTINGS SHOWN ABOVE ARE SPECIFIED FOR THE RESPECTIVE REPLACEMENT CARTRIDGE LISTED. FOR ORIGINAL CARTRIDGE NEEDLE REPLACEMENTS SEE BELOW.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA			REMARKS
	RCA Victor PART No.	JENSEN PART No.	WALCO PART No.	
M3	102352 (1 Mil)	* A-85LP or † A-75LP or ♦ A-75LPD	* W-5MGA or † W-5MGS or ♦ W-5MGD	* Metal † Jewel ♦ Diamond
	102353	* A-85 or † A-75 or ♦ A-75D	* W-5A or † W-55 or ♦ W-5D	

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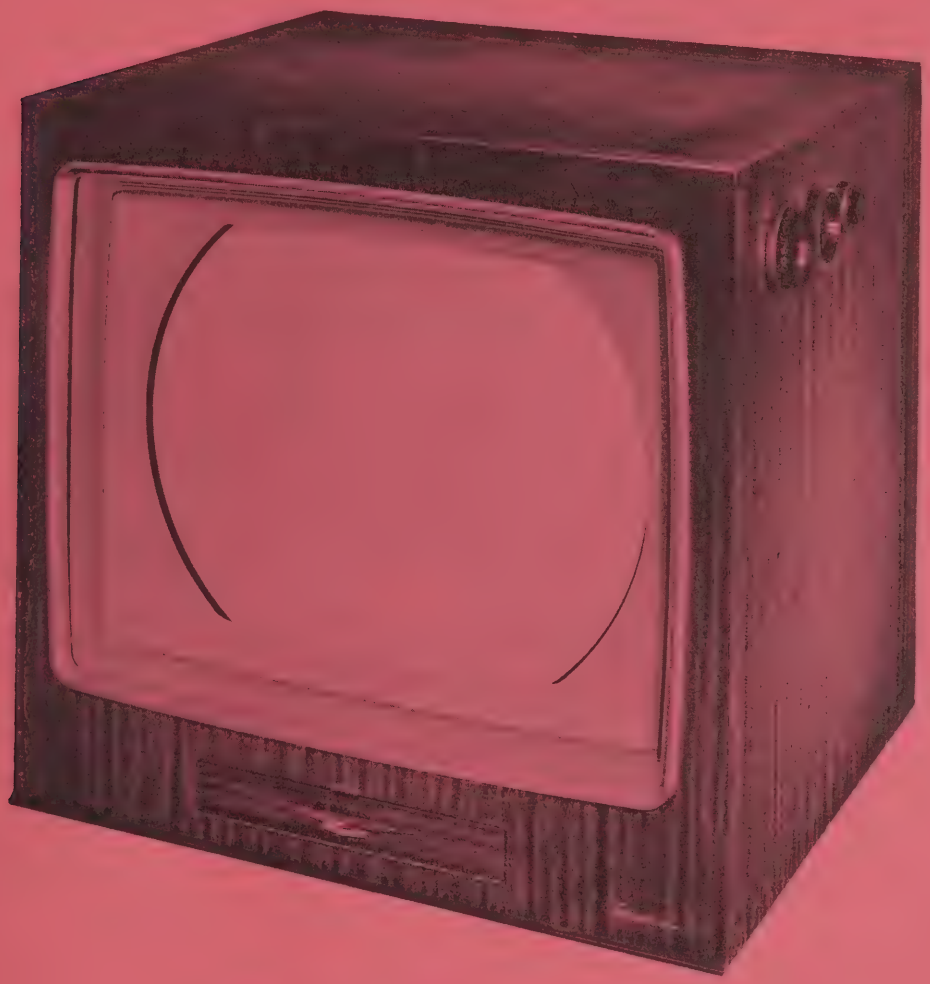

MODEL 21-CS-7815U

RCA VICTOR MODELS 21-CS-7815, U, 21-CS-7817, U, 21-CT-7835, U, 21-CT-7837, U, 21-CT-7855, U, 21-CT-7857, U, 21-CT-7865, U, 21-CT-7866, U, 21-CT-7867, U, (Ch. CTC5, A, B, C, D,E)

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MODEL	CHASSIS
21-CS-7815U	CTC5A

RCA VICTOR MODEL 21-CS-7815U (Ch. CTC5A)

TRADE NAME	RCA Victor	MODELS	CHASSIS
		21-CS-7815, 21-CS-7817	CTC5
		21-CS-7815U, 21-CS-7817U	CTC5A
		21-CT-7835, 21-CT-7837	CTC5B
		21-CT-7835U, 21-CT-7837U	CTC5C
		21-CT-7855, 21-CT-7857, 21-CT-7865, 21-CT-7866, 21-CT-7867	CTC5D
		21-CT-7855U, 21-CT-7857U, 21-CT-7865U, 21-CT-7866U, 21-CT-7867U	CTC5E

MANUFACTURER	Radio Corporation of America, RCA Victor Tele. Div., Camden 8, N. J.
TYPE SET	Color Television Receiver
TUBES	Twenty-eight
POWER SUPPLY	110-120 Volts AC - 60 Cycles RATING 3.55 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

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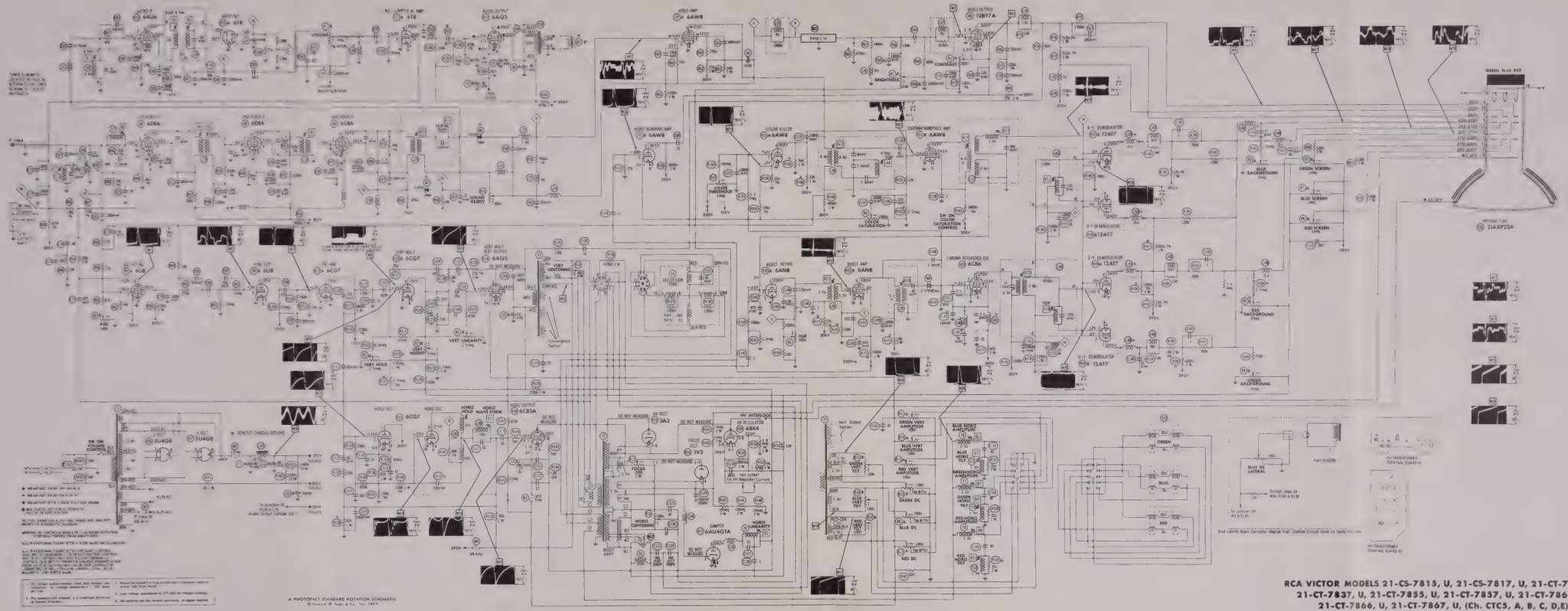

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BLOCK DIAGRAM

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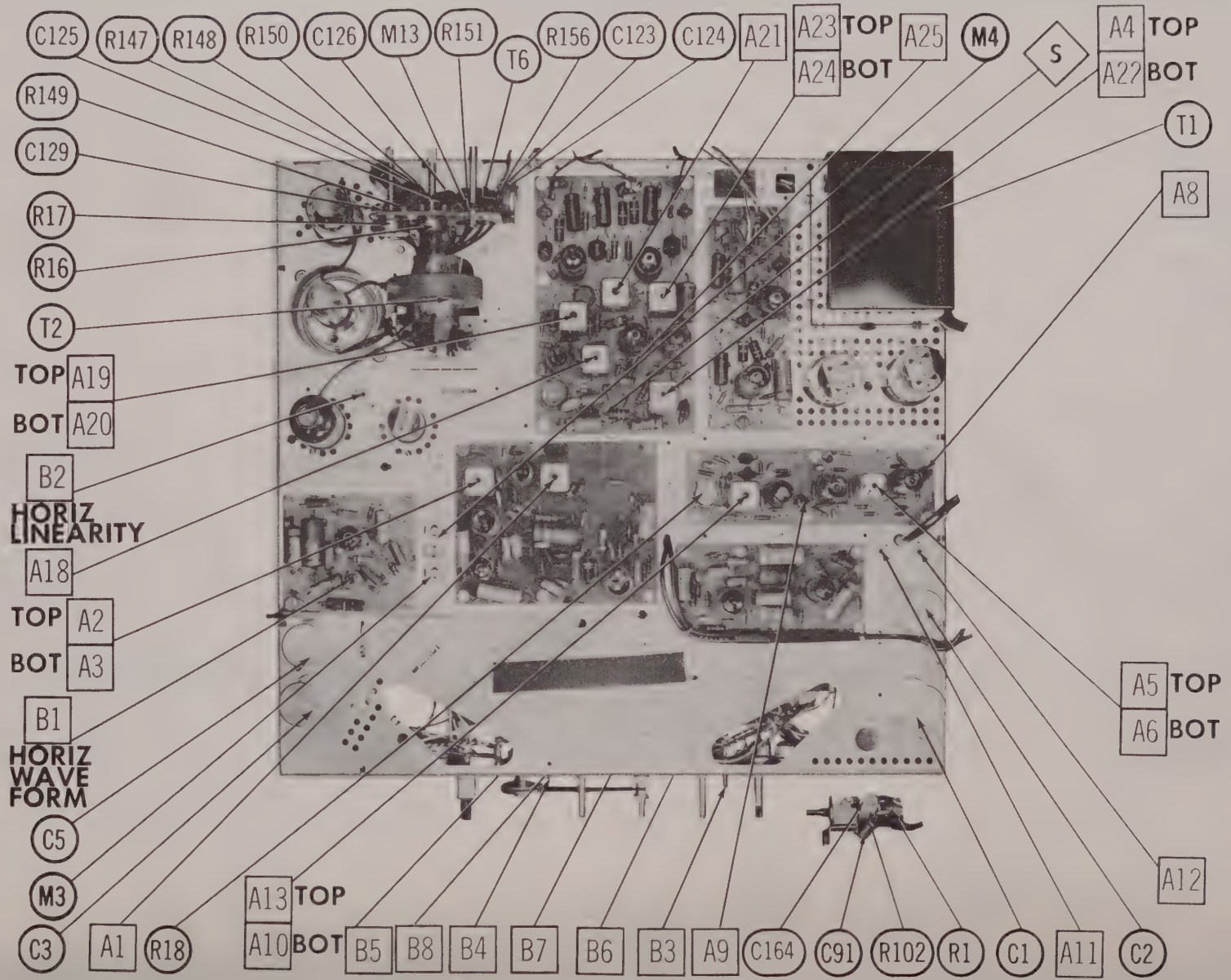
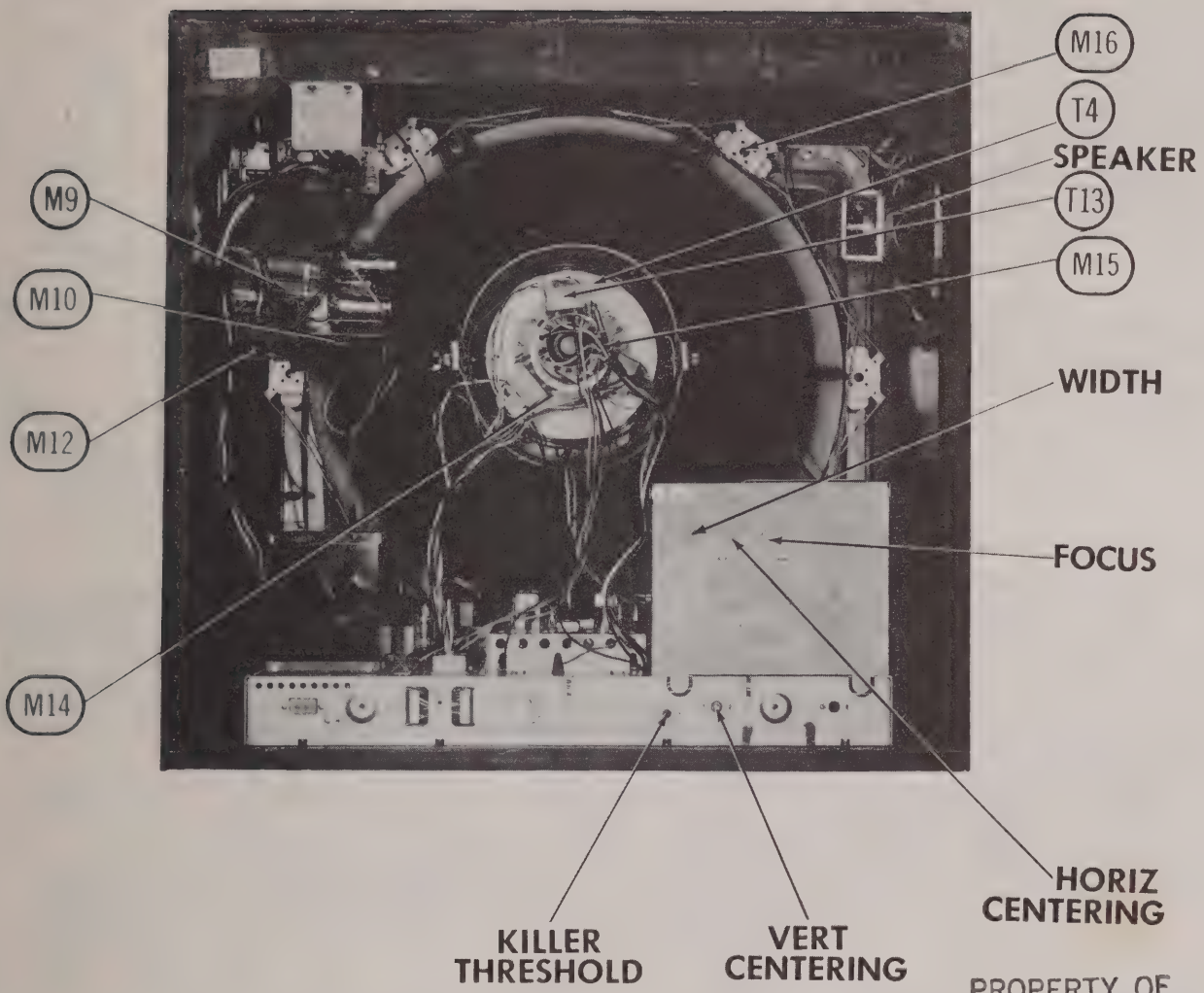


CHASSIS TOP VIEW



CABINET—REAR VIEW

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DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push-on type control knobs from front, 6 from side.
2. Remove 4 wood screws, remove rear cover.
3. Remove HV lead (inside HV compartment), yoke plug, 2 speaker leads, convergence yoke plug, picture tube socket, tuner power cable, and tuner output cable.
4. Loosen metal screw holding on-off-volume control to tuner bracket, lift up and remove.
5. Remove 4 chassis bolts.
6. Remove chassis.
7. Remove 1 hex nut exposed by removal of channel selector knob, and 2 hex nuts inside the cabinet holding tuner assembly.
8. Remove tuner assembly.
9. Remove 4 speaker nuts. Remove speaker.

PICTURE TUBE REMOVAL

1. Remove chassis and tuner as outlined in "Chassis Removal".
2. Lay cabinet face down on a pad.
3. Remove blue beam lateral correction magnet, color purity magnet and convergence yoke assembly.
4. Remove 4 hex nuts. Slide mounting brackets upward and out.
5. Remove springs and rubber cushions.
6. Remove yoke and HV insulator.
7. Remove picture tube, remove flange insulator and HV lead.

SAFETY GLASS REMOVAL

1. Remove 4 push-on type knobs from front.
2. Remove 2 screws holding control panel and remove panel.
3. Pull down on 2 round hooks at top of control panel and pull out on bottom edge of trim (about 6 inches). Pull trim down to remove.
4. Remove 4 wood screws and rear cover.
5. Four clips holding safety glass may be removed by depressing at rear and removing from front.
6. Using extreme caution, remove clips and safety glass.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

The high voltage should be disabled by removing the fuse (M), Connect at 3500 ohm 100 watt resistor from the B+ side of C5A (filter capacitor) to chassis. Turn the AGC control fully clockwise and the focus control fully counter clockwise.

SOUND IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM

Connect the negative lead of a variable bias supply to pin 7 (grid) of 6AW8 chroma bandpass amp. (V31A). Positive to chassis.
Adjust for -8 volts at the grid.
Remove the bottom shield from the video IF printed board.
Connect two matched 100K (±1%) resistors in series from point Ⓐ to chassis. The junction of these two resistors is alignment point Ⓔ as shown on the schematic.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	.01MFD	High side to point Ⓓ. Low side to chassis.	4.5MC (unmod)	Any	DC probe to point Ⓐ. Low side to chassis.	A1, A3, A3	Adjust for maximum deflection. Adjust the signal generator for -3 volts on VTVM when finally peaked.
2.	"	"	"	"	DC probe to point Ⓑ Low side to point Ⓒ	A3	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting. Remove the resistors and test equipment.

SOUND IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE

Connect bias as under "Sound IF Alignment Using AM Signal Generator and VTVM".
Use frequency modulated signal with 80% modulation and 4500KC sweep. Use 120v sawtooth voltage in scope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	.01MFD	High side to point Ⓓ Low side to chassis.	4.5MC (450 KC Swp)	4.5MC	Any	Vert. amp. to point Ⓐ. Low side to chassis.	A1, A3	Disconnect stabilizing capacitor (C4). Adjust for curve of maximum amplitude and symmetry as in Fig. 1. Reconnect C4.
2.	"	"	"	"	"	Vert. amp. to point Ⓑ Low side to chassis.	A3	Adjust so that 4.5MC marker occurs at center of crossover lines as in Fig. 2. SLIGHTLY retouch A3 for maximum amplitude and straightness of crossover lines.

VIDEO TRAP ALIGNMENT

Connect a clip lead from pin 1 (grid) of 6CB6 (V6) to chassis. The -8 volts bias inserted at the grid of V31 may have to be lowered to obtain sufficient indication on the scope.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	.01MFD	High side to pin 7 (grid) of 6AW8 (V7). Low side to chassis.	Not used.	4.5MC (400% Mod)	Any	Vert. amp. thru detector probe (Fig. 3) to point Ⓔ. Low side to chassis.	A4	Use high signal generator output. Adjust A4 for MINIMUM 400% indication on scope. Remove short from pin 1 of V6. Replace shield on video IF printed board.

VIDEO IF ALIGNMENT

Connect the negative lead of a variable bias supply to point Ⓔ. Positive to chassis. Adjust for -9 volts at point Ⓔ.
Connect a clip lead from point Ⓒ to chassis.
For step 11, connect the negative lead of a second variable bias supply to point Ⓔ. Positive to chassis. Adjust for -4 volts at point Ⓔ.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
4.	1500MMF	High side to pin 1 (grid) of 6DE8 (V4). Low side to chassis.	43.5MC (10MC Swp)	42.17MC 45.75MC	Any non-interfering channel.	Vert. amp. thru detector probe (Fig. 3). Use lead lead of detector to pin 5 (plate) of 6CB6 (V6). Connect detector lead of probe to pin 1 (plate) of 6DE8 (V4). Low side to chassis.	A5, A8	Shield of video IF board must be in place. Adjust for response similar to Fig. 4. (Use sufficient signal to produce .1 volt peak to peak for this adjustment.)
5.	"	High side to point Ⓓ. Low side to chassis.	Not used.	45.75MC (400% Mod)	"	Vert. amp. thru 10K to point Ⓒ. Low side to chassis.	A7, A8	Preset sound reject control (R18) at mid-range. Adjust for maximum 400% indication on scope.
6.	"	"	"	43.5MC (400% Mod)	"	"	A9	"
7.	"	"	"	43.8MC (400% Mod)	"	"	A10	"
8.	"	"	"	41.25MC (400% Mod)	"	"	A11	Adjust for MINIMUM 400% indication on scope.
9.	"	"	"	47.25MC (400% Mod)	"	"	A13	"
10.	"	"	"	41.25MC (400% Mod)	"	"	A13, R18	Adjust for MINIMUM 400% indication on scope. Repeat step 7.
11.	"	High side to point Ⓓ. Low side to chassis. Use very short exposed ends on leads.	43.5MC (10MC Swp)	42.17MC 42.75MC 45.0MC 45.75MC	4	"	"	Check for response curve similar to Fig. 5 with markers as indicated. Retouch A7, A9, A10 to obtain proper response if necessary. (Use 3 volts peak to peak on scope.) Repeat step 10.

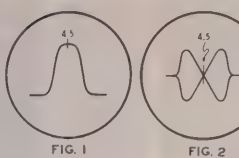


FIG. 1 FIG. 2

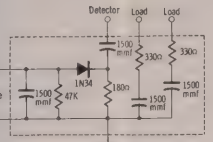


FIG. 3

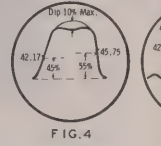


FIG. 4

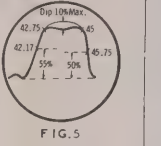


FIG. 5

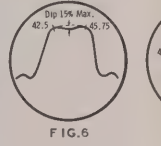


FIG. 6

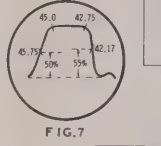


FIG. 7

FIG. 8

ADDITIONAL VIDEO IF ALIGNMENT FOR UHF MODELS

Remove the crystal cover of the UHF tuner to make sweep connection to front terminal of crystal holder.
Leave both bias supplies connected as under "Video IF Alignment".
Keep the RF bias set at -4 volts and the IF bias at -9 volts.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	1000Ω carbon resistor in series with 1500MMF ceramic capacitor	High side to front terminal of UHF crystal holder. Low side to chassis. (Use very short leads.)	650MC (10MC Swp)	43.5MC 45.75MC	Between channels 43 and 44	Connect a 1800Ω carbon resistor in series with a 3500MMF capacitor from point Ⓒ to chassis with the resistor next to chassis. Connect the vert. amp. of scope to high side of 1800 resistor thru detector probe (Fig. 3). Low side to chassis.	A14, A15, A16, A17	Couple the marker generator loosely to detector probe (Fig. 3) to provide markers. Set sweep generator to provide .5 volts (or least peak to peak on scope. Adjust A14 for maximum gain with markers as indicated in Fig. 6. If necessary, adjust A15 to place 45.75MC marker at peak of curve. Adjust A16 for MINIMUM tilt of curve. If necessary, adjust A17 for proper bandwidth. Remove the 1800 resistor and 1500MMF capacitor.
13.	Two 120Ω carbon resistors	Across VHF antenna terminals with 120Ω in each lead.	43.5MC (10MC Swp)	42.17MC 42.75MC 45.0MC 45.75MC	Check on all VHF channels.	Vert. amp. thru 10K to point Ⓒ. Low side to chassis.	A8, A10	Couple marker generator loosely to first video IF amplifier grid. Check for response similar to Fig. 7 on all VHF channels. SLIGHTLY retouch A8 and A10 if necessary for any overall tilt.
14.	"	Across UHF antenna terminals with 120Ω in each lead.	See freq. chart.	"	Check on all UHF channels.	"	A14, A15, A16	Leave marker as in step 13. Check for response similar to Fig. 7 on all UHF channels. SLIGHTLY retouch A14, A15 and A16 if necessary to correct any overall tilt. Remove test equipment and bias supplies.

VIDEO AND BANDPASS ALIGNMENT

Set receiver to channel 4.
Leave the two bias supplies connected as under "Video IF Alignment".
Adjust the RF bias supply for -4 volts and the IF bias supply for -9 volts.
Connect the negative lead of a 100 volt bias supply to pin 2 (grid) of the 6AN8 burst keyer (V32A). If a 100 volt bias is not available, remove V32 and connect a 5.6MMF capacitor from cathode (pin 3) to ground.
Keep the screen bias at pin 7 of V31 set for -8 volts.
Turn the killer threshold control (R15) fully counter clockwise.
Be sure that the video amplifier tube (V7) is in its socket.
Connect the VTVM thru the detector probe (Fig. 3) to pin 3 or 8 (cathode) of the 12ATT G-Y demodulator (V24). Connect the common lead of the VTVM to chassis. A reading up to 20 volts should be obtained on the meter. The absence of a voltage reading is an indication that the 3.579545MC oscillator is not operating. If this is the case, adjust A18 to obtain a reading.
Connect the DC probe of the VTVM to point Ⓒ. Common to chassis. Adjust A19 and A20 for maximum indication on the VTVM.
Connect the DC probe of the VTVM to point Ⓒ. Common to chassis. Adjust A21 for maximum indication on the VTVM.
Connect the negative lead of the oscilloscope detector probe (Fig. 3) to point Ⓒ. Low side to chassis. Loosely couple marker generator to scope lead. Set the signal generator to 113MC. Connect an insulated wire to the "RF. IN" terminal of the generator and insert the free end into the tuner near the oscillator.
Adjust the fine tuning for an audible beat with the signal generator. This will insure that the oscillator is set to exact frequency. Connect the sweep and signal generator to the antenna terminals using the RF modulator and set the sweep generator for video sweep. Set the signal generator to 67.25MC. Connect the VTVM thru the detector probe (Fig. 3) between points Ⓐ and Ⓒ. Adjust the output of the generators to produce 1.5 volts on the VTVM. The response on the scope should conform to the response curve in Fig. 8.
Disconnect the scope and diode probe from point Ⓐ and reconnect to pin 9 (plate) of the 6AW8 chroma bandpass amp. (V31).
Load the bandpass transformer (L37) by connecting a 330 ohm 1 watt resistor from pin 8 (screen) to pin 9 (plate) of the 6AW8 (V31).
Adjust A23 for the response shown in Fig. 8. Remove the 330 ohm resistor and connect the scope and diode probe to point Ⓒ, the low side to chassis. Adjust A23 and A24 for response curve similar to Fig. 10 with markers as indicated. (Note: If the proper response cannot be obtained, run the top core, A23 thru the coil and approach the coil from the opposite direction to obtain the correct response.)
Leaving the generators connected as is, check the demodulator circuits by connecting the scope to each of the picture tube grids (pins 2, 12 and 6 in that order) and check for response curves similar to Fig. 11A, B and C. Any excessive deviation from these curves indicates improper operation of the demodulator circuits.
Remove all bias sources, the 3500 ohm resistor loading the B+ line and the conductive. Replace the fuse (M4) back in the circuit and V32, if removed.

TELEVISION CHANNEL FREQUENCIES

Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier	Channel No.	Frequency Band (Mc)	Video Carrier	Sound Carrier
2	54-60	55.25	59.75	23	524-530	525.25	529.75	44	650-656	651.25	655.75	64	770-776	771.25	775.75
3	60-66	61.25	65.75	24	530-536	531.25	535.75	45	656-662	657.25	661.75	65	776-782	777.25	781.75
4	66-72	67.25	71.75	25	536-542	537.25	541.75	46	662-668	663.25	667.75	66	782-788	783.25	787.75
5	76-82	77.25	81.75	26	542-548	543.25	547.75	47	668-674	669.25	673.75	67	788-794	789.25	793.75
6	82-88	83.25	87.75	27	548-554	549.25	553.75	48	674-680	675.25	679.75	68	794-800	795.25	799.75
7	174-180	175.25	179.75	28	554-560	555.25	559.75	49	680-686	681.25	685.75	69	800-806	801.25	805.75
8	180-186	181.25	185.75	29	560-566	561.25	565.75	50	686-692	687.25	691.75	70	806-812	807.25	811.75
9	186-192	187.25	191.75	30	566-572	567.25	571.75	51	692-698	693.25	697.75	71	812-818	813.25	817.75
10	192-198	193.25	197.75	31	572-578	573.25	577.75	52	698-704	699.25	703.75	72	818-824	819.25	823.75
11	198-204	199.25	203.75	32	578-584	579.25	583.75	53	704-710	705.25	709.75	73	824-830	825.25	829.75
13	204-210	205.25	209.75	33	584-590	585.25	589.75	54	710-716	711.25	715.75	74	830-836	831.25	835.75
14	210-216	211.25	215.75	34	590-596	591.25	595.75	55	716-722	717.25	721.75	75	836-842	837.25	841.75
15	470-476	471.25	475.75	35	596-602	597.25	601.75	56	722-728	723.25	727.75	76	842-848	843.25	847.75
16	476-482	477.25	481.75	36	602-608	603.25	607.75	57	728-734	729.25	733.75	77	848-854	849.25	853.75
17	482-488	483.25	487.75	37	608-614	609.25	613.75	58	734-740	735.25	739.75	78	854-860	855.25	859.75
18	488-494	489.25	493.75	38	614-620	615.25	619.75	59	740-746	741.25	745.75	79	860-866	861.25	865.75
19	494-500	495.25	499.75	39	620-626	621.25	625.75	60	746-752	747.25	751.75	80	866-872	867.25	871.75
20	500-506	501.25	505.75	40	626-632	627.25	631.75	61	752-758	753.25	757.75	81	872-878	873.25	877.75
21	506-512	507.25	511.75	41	632-638	633.25	637.75	62	758-764	759.25	763.75	82	878-884	879.25	883.75
22	512-518	513.25	517.75	42	638-644	639.25	643.75	63	764-770	765.25	769.75	83	884-890	885.25	889.75
	518-524	519.25	523.75	43	644-650	645.25	649.75								

FIG. 9

FIG. 10

FIG. 11

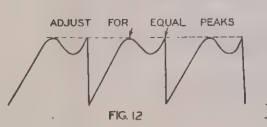


FIG. 12

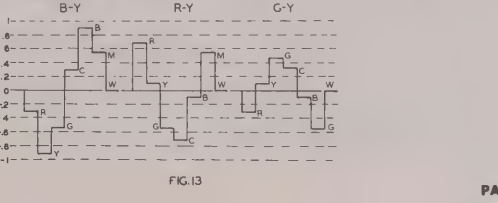


FIG. 13

RCA VICTOR MODELS 21-CS-7815, U, 21-CS-7817, U, 21-CT-7835, U, 21-CT-7837, U, 21-CT-7855, U, 21-CT-7857, U, 21-CT-7865, U, 21-CT-7866, U, 21-CT-7867, U, (Ch. CTC5, A, B, C, D.E)

MISCELLANEOUS ADJUSTMENTS

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a 0-500MA meter across the horizontal output fuse holder (M3). Remove the fuse (M3).

Loosen the cover of the high voltage cage and slide it back. Connect the VTVM thru the high voltage probe to the cup at the base of the high voltage rectifier tube (V19). Connect the common lead of the VTVM to chassis.

Turn the set on and tune in a TV station.

Set the width switch (M13) on the rear of the high voltage cage to its center position.

If necessary, adjust the vertical hold control to synchronize the picture vertically.

Adjust the horizontal hold to synchronize the picture horizontally. Using a low capacity probe, connect the vertical amplifier of the scope to point (R). Low side to chassis. Adjust the horizontal waveform slug (B1) until the sharp peaks and the round peaks of the waveform of the scope are of equal heights as in Fig. 12. Keep the picture in sync during this adjustment with the horizontal hold.

Rotation of the horizontal hold should cause the picture to lose sync at either end of its rotation. From counter clockwise position, the picture should pull into sync with between 1 and 3 bars present. The picture should remain in sync for three complete turns of the knob clockwise from the pull-in point.

The proper setting for the horizontal hold is 1 turn counter clockwise from point of pull-in at the clockwise position of the knob. Adjust the horizontal linearity slug (B2) for a MINIMUM current reading on the MA meter. This will give the best horizontal linearity. Adjust the height and vertical linearity controls for a 1 inch over scan, at the top and bottom of the screen, with 117 volts line voltage. Adjust the focus control for proper focus.

COLOR AFC ALIGNMENT

Connect the color bar generator to the antenna terminals. Turn the channel selector to channel 3 and tune the signal in on the receiver. Adjust the horizontal control on the generator (if one is used, if not, use the one on the receiver) until the bars synchronize horizontally on the picture tube.

Adjust the fine tuning control until the picture shows no sound interference. Adjust the color saturation control (R5) until color appears in the bar pattern. Set the color saturation and the contrast controls to their mid-positions.

To be sure that the chroma reference oscillator is running, check the output at one of the demodulator tube cathodes as under "Video and Band-pass Alignment". Retouch A18 if necessary to start the oscillator. Connect the DC probe of the VTVM to point (N) (common to chassis) and retouch A19 and A20 for maximum indication on the VTVM.

Move the DC probe of the VTVM to point (O) and retouch A21 for maximum meter indication.

Turn the color saturation control fully clockwise.

Connect a very short clip lead from pin 3 (cathode) of 6AN8 (V22) to chassis.

Adjust A18 for zero beat as indicated on the picture tube. Remove the clip lead.

Return the color control to the center of its range.

Connect the DC probe of the VTVM to point (S). Common to chassis. Connect the vertical amplifier of the scope to pin 12 (the blue grid) of the picture tube.

Connect a 150MMF capacitor from point (T) to chassis.

Set the hue control fully counter clockwise.

Adjust A25 for maximum deflection of the meter.

Remove the capacitor from point (T) and return the hue control to the mid-position.

Move the DC probe of the meter to point (O) and observe the voltage reading obtained.

Switch the bar pattern generator to R-Y position. Observe the bar pattern obtained on the scope from the blue grid (Pin 12 of V28) and rock the hue control back and forth from one extreme to the other while adjusting A20 for equal swing of the R-Y bar about the zero axis. Return the hue control to the point where the R-Y bar is cancelled out. If A20 requires much adjustment, recheck for zero beat at A18 and repeat above adjustment.

Again note the voltage reading on the VTVM. It should not have decreased more than 1½ volts with adjustment of A20. Reconnect the DC probe of the VTVM to point (N) and note the voltage reading. Move the vertical amplifier of the scope to the green grid (pin 6) of the picture tube. Switch the color bar generator back to the color bar position and if necessary, retouch A20 for G-Y signal as in Fig. 13. Move the vertical amplifier of the scope to the red grid (pin 2) of the picture tube. Check for R-Y signal as in Fig. 13. If necessary, retouch A19 for proper R-Y waveform. The voltage reading on the VTVM should be within 1½ volts of the reading obtained before retouching A19. Recheck the waveforms on the blue, red and green grids to see that they have the proper amplitude with respect to one another as indicated in Fig. 13. If they do not, it may be necessary to repeat adjustments of A19 and A20 as just outlined.

KILLER THRESHOLD CONTROL ADJUSTMENT

Set the channel selector to any unused channel. Set the contrast control so noise is visible on the picture tube. Set the color saturation control to maximum. Color should be present in the noise pattern on the screen. Adjust the killer threshold control (R15) until the color visible in the noise just disappears.

COMPLETE SET-UP PROCEDURE

Make sure that the AGC is properly adjusted and that the horizontal sweep circuits have been adjusted as per instructions.

PRELIMINARY CONVERGENCE ADJUSTMENT

Connect the RF output of a white dot generator to the antenna terminals. Preset the red, blue and green horizontal and vertical amplitude controls fully counter clockwise. The controls are located on the front of the set below the picture tube. Preset the red, blue and green vertical tilt controls to mid-range. Adjust the red, blue and green DC controls and the blue lateral correction magnet (M5, located on the neck of the picture tube tube) to produce a white dot in the center of the screen. Keep the focus in adjustment while making these adjustments.

Switch the generator to "Standby" position.

COLOR PURITY ADJUSTMENTS

Switch the channel selector to an unused channel and turn the contrast control fully counter clockwise.

Set the red tabs on the purity magnet together.

Turn the six field neutralizing magnets fully counter clockwise. These adjustments are accessible from the front of the set after the front trim is removed. Loosen the wing nuts at each side of the deflection yoke and slide the yoke as far to the rear as possible. Turn the blue and green screen controls fully counter clockwise. The controls are located on the front apron of the chassis behind the control case, which should be removed.

Rotate the purity magnet around the neck of the picture tube and at the same time adjust the tabs with respect to eachother to produce a uniform red area at about 8 o'clock position on the screen and displaced from the center by a distance of approximately one-half the area itself. Move the yoke forward until the most uniform red screen without neck shadow is obtained. When the best position is found with a MINIMUM of purity error at the edges of the screen, tighten the wing nuts holding the yoke in place.

Tune in a station broadcasting a black and white picture and adjust the blue and green screen controls to produce a black and white picture. Adjust the neutralizing magnets for best white uniformity in the areas of each magnet. Some areas will require adjustment of more than one magnet. Check each color field by turning the other two screen controls down in turn, to insure that screen purity has not been sacrificed at the expense of uniformity.

VERTICAL DYNAMIC CONVERGENCE ADJUSTMENTS

Recheck "Preliminary Convergence Adjustment" for correct setting of the three DC convergence controls and the blue lateral magnet to produce a white dot at the center of the screen.

Switch dot generator to vertical bars. Referring to the center vertical bar nearest the center of the screen, turn the red vertical amplitude control fully clockwise and adjust the red vertical tilt control for maximum displacement of the red bar at the center of the screen. Turn the green vertical amplitude control fully clockwise and adjust the green vertical tilt control for maximum displacement of the green vertical bar at the center of the screen. The direction of displacement of the green bar should be opposite to that of the red bar.

Adjust the red and green vertical amplitude and tilt controls to produce straight vertical red and green bars parallel to the blue bar. Converge the three bars using the red and green DC controls to form a single white vertical bar at the center of the screen. SLIGHT readjustment of the red and green vertical amplitude and tilt controls may be required to produce this condition. Recheck the focus.

Turn the generator to horizontal bars and using the blue DC control displace the blue bar SLIGHTLY away from the others. Adjust the blue vertical amplitude and tilt controls for equal displacement of the blue bars with respect to the others from top of the screen to the bottom near the center of the screen (horizontally).

HORIZONTAL DYNAMIC CONVERGENCE ADJUSTMENTS

Referring to the center horizontal bars, turn the blue horizontal amplitude (B6) clockwise until the blue bar appears in the center of the screen. The blue bar will be below the red and green bars. Alternately adjust the blue horizontal tilt (B3) and amplitude (B6) to produce a straight blue horizontal bar across the center of the screen.

Shunt the red grid of the picture tube to chassis through a 100K resistor. (Red wire at the rear edge of the chroma printed board.) Alternately adjust the green horizontal amplitude (B7) and tilt (B4) to produce a green bar parallel to the blue bar over its entire length at the center of the screen.

Remove the shunt from the red grid of the picture tube and place it on the green grid. Alternately adjust the red horizontal amplitude (B8) and tilt (B5) to produce a red bar parallel to the blue bar over its entire length at the center of the screen. Remove the 100K shunt from the green grid.

MISCELLANEOUS ADJUSTMENTS (cont.)

With the blue DC control, move the blue bar near the other two and if necessary, retouch the above adjustments SLIGHTLY until all three bars are equally displaced along the entire center line of the screen.

Turn the generator to dot pattern and converge the dot pattern with the blue, red and green DC controls and the blue lateral correction magnet. The dot pattern should show maximum convergence over the entire area of the screen.

GRAY SCALE ADJUSTMENTS

Turn all screen, background, contrast and brightness controls fully counter clockwise.

Connect the VTVM between grid and cathode of the red gun and adjust the red background control for a reading of -130 volts.

Turn the contrast up until a dim red picture can be seen. If necessary, turn up the brightness control to make this condition.

Observing the normally white area of the picture, adjust the blue and green background controls for a grayish white picture.

Turn the contrast control fully counter clockwise. Adjust the brightness control so that the meter reads -90 volts. Remove the VTVM from the circuit.

Turn the contrast control up until a picture is visible and then down until the picture just goes out.

Adjust the red screen clockwise until low light areas are just visible. Adjust the green and blue screens until the low light areas are dark gray. (Note: The screen controls are adjusted to make dark areas dark gray. The backgrounds are adjusted to make the light areas white.)

COMPONENT CHANGES

ITEM#	INITIAL PRODUCTION	INTERMEDIATE PRODUCTION	LATE PRODUCTION
C47	5.6 mmf		8 mmf
C48	10 mmf		8 mmf
C116	270 mmf		330 mmf
C150	10000 mmf		470 mmf
C153	18 mmf	120 mmf	22 mmf
C155A	10 mfd @ 25 V		10000 mmf
B	10 mfd @ 25 V		10000 mmf
L41	12 Microhenries #100441		33 Microhenries #103368
R45	100Ω	1000Ω	68Ω
R46	33K		100K
R49	56Ω		68Ω
R54	56Ω		68Ω
R65	4700Ω	Not used.	4700Ω
R119	18K		15K

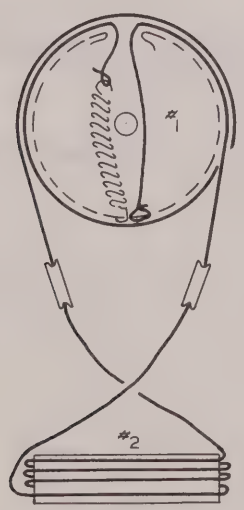
ITEM#	INITIAL PRODUCTION	INTERMEDIATE PRODUCTION	LATE PRODUCTION
R125	3.9 Meg	Not used.	2.7 Meg
R127	500K	2.7Meg	820K
R138	100K, 1W	120K, 1W, 150K, 1W	82K, 1W
R159	22Ω, 2W		27Ω, 2W
R162	390K		2.2 Meg
R165	33K, 1W		56K, 1W
R166	56K, 1W		33K, 1W
R170	47K	100K, 1 Meg	56K
R171	10K, 2W		22K, 2W
R172	22K, 2W		10K, 2W
R173	82K, 1W		3300Ω, 1W
R182	5600Ω 1W		6200Ω, 1W
R191	10K, 1W		8200Ω, 1W
R193	10K, 2W		15K, 2W
R198	5600Ω, 1W		3300Ω, 1W

WIRING CHANGES

In later production, the 47MMF internal capacitor in series with the secondary of the burst amplifier transformer (L39) is removed and replaced by an external 120MMF capacitor. A resistor of either 470Ω or 680Ω is added between the junction of the 2.2Meg resistor (R175), 1.6MMF capacitor (C148) and 3.579545MC crystal (M8) and junction of 47K resistor (R174), 3.5MMF capacitor (C151) and grid, pin 2, of 6CB6 chroma reference oscillator V23.

In later production a 1Meg burst gain control is added (part #102152). The low end of this control is jumpered to the arm and connected to the grid, pin 2, of 6AW8 horizontal blanking amplifier (V7B). The high end of the control is connected to point (S) at junction of 56K resistor (R170) .022 capacitor (C147) and secondary of burst plate transformer (L38). This connection of the control may be direct or through a series resistor of 180K, 390K or 270K with 270K as latest value. A 390K resistor is also added from point (S) to the grid, pin 3, of 6AW8 color killer tube (V21A).

In early production the junction of a .1 capacitor (C128) and a 1.8Meg resistor (R153) was connected to terminal W2 of the horizontal output transformer (T2). In later production this junction was moved to terminal W1 of T2.



FINE TUNING SHAFT & PULLEY #1 SHOWN IN MAXIMUM CLOCKWISE POSITION.

VHF FINE TUNING DRIVE CORD STRINGING

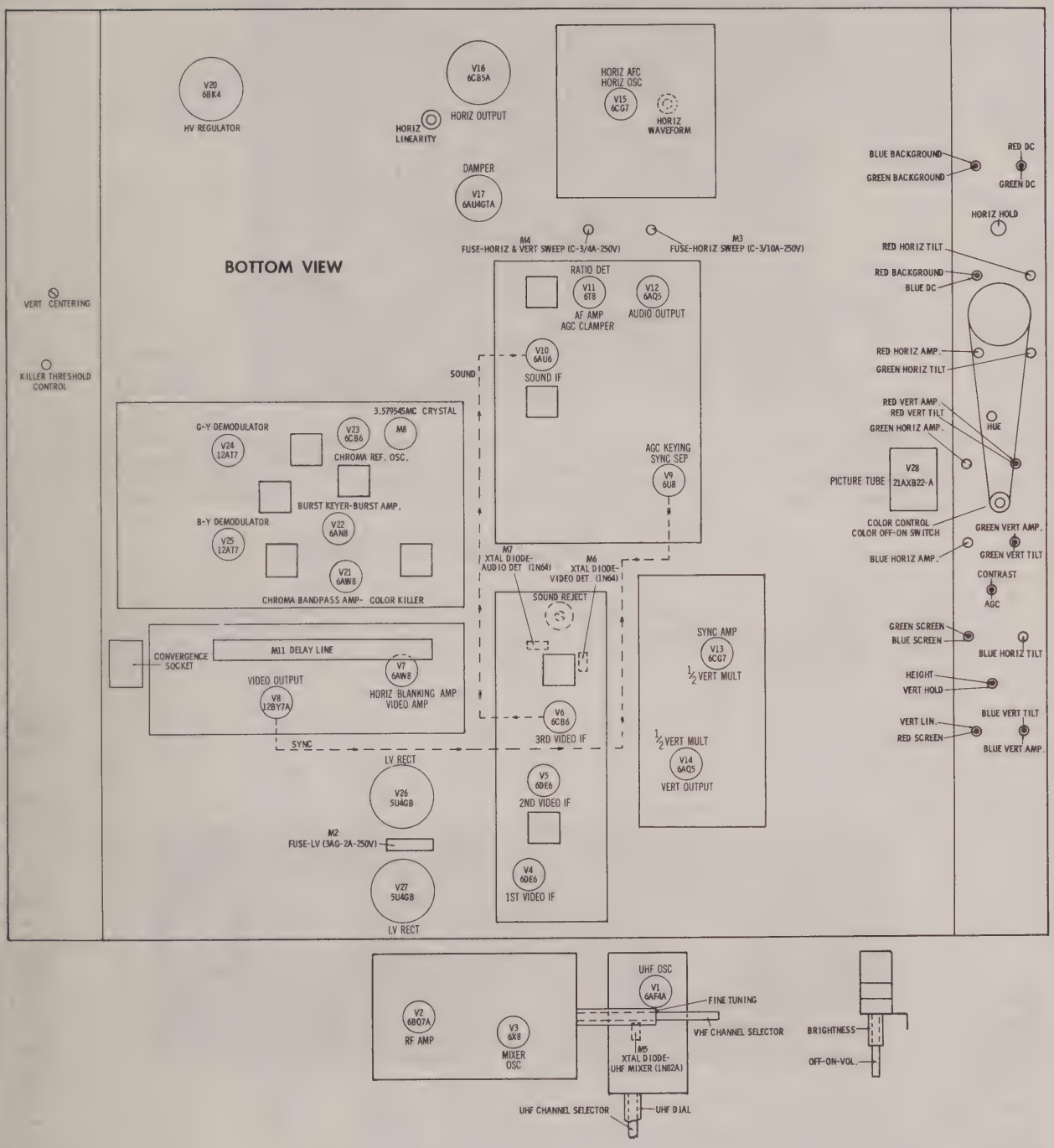
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AF4A	*† 17K	*8300Ω	0Ω	.1Ω	*0Ω	*8300Ω	*† 17K		
V2	6BQ7A	† 2800Ω	† 480K	† 570K	0Ω	.1Ω	† 570K	230K	120Ω	0Ω
V3	6X8	0Ω	100K	† 14K	.1Ω	0Ω	0Ω	100K	† 18K	† 18K
V4	6DE6	33K	68Ω	0Ω	.1Ω	† 5600Ω	† 5600Ω	0Ω		
V5	6DE6	34K	68Ω	0Ω	.1Ω	† 5600Ω	† 5600Ω	0Ω		
V6	6CB6	.2Ω	180Ω	.1Ω	0Ω	■ 470Ω	■ 470Ω	0Ω		
V7	6AW8	● 250Ω	27K	† 4500Ω	0Ω	.1Ω	700Ω	2500Ω	† 15K	† 7500Ω
V8	12BY7A	● 180Ω	950K	0Ω	0Ω	0Ω	.1Ω	† 4500Ω	† 22K	0Ω
V9	6U8	■ 1Meg	† 33K	† 5400Ω	0Ω	.1Ω	280K	60K	0Ω	2.2Meg
V10	6AU6	47K	0Ω	.1Ω	0Ω	■ 1800Ω	■ 1800Ω	120Ω		
V11	6T8	INF	27K	INF	.1Ω	0Ω	220K	0Ω	10Meg	† 330K
V12	6AQ5	550K	■ 82Ω	.1Ω	0Ω	† 800Ω	† 490Ω	550K		
V13	6CG7	■ 9500Ω	33K	0Ω	.1Ω	0Ω	● ‡ 2.4Meg	2.2Meg	0Ω	0Ω
V14	6AQ5	● 1.7Meg	● 33Ω	.1Ω	0Ω	† 3300Ω	† 2700Ω	● 1.7Meg		
V15	6CG7	† 700Ω	1.2Meg	230K	.1Ω	0Ω	† 28K	250K	0Ω	0Ω
V16	6CB5A	† 10K	0Ω	● 25Ω	450K	450K	● 25Ω	.1Ω	† 10K	TOP CAP ‡ 36Ω
V17	6AU4GTA	NC	NC	180K	NC	† 40Ω	NC	0Ω	.1Ω	
V18	1V2	INF	INF	INF	30Meg	30Meg	INF	INF	INF	‡ 38K
V19	3A3	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP 480Ω
V20	6BK4	40Ω	† 11K	NC	NC	‡ 900K	NC	† 11K	NC	TOP CAP INF
V21	6AW8	22Ω	1.8Meg	† 22K	.1Ω	0Ω	0Ω	2.2Meg	† 7500Ω	† 7500Ω
V22	6AN8	† 22K	2.2Meg	2.6Ω	.1Ω	0Ω	† 11K	3300Ω	100K	0Ω
V23	6CB6	47K	0Ω	0Ω	.1Ω	† 1700Ω	† 47K	0Ω		
V24	12AT7	† 16K	1.5Ω	1000Ω	.1Ω	.1Ω	† 17K	1.5Ω	1000Ω	0Ω
V25	12AT7	† 23K	1.5Ω	1000Ω	.1Ω	.1Ω	† 12K	1.5Ω	1000Ω	0Ω
V26	5U4GB	NC	20K	NC	14Ω	NC	13Ω	NC	20K	
V27	5U4GB	NC	20K	NC	14Ω	NC	13Ω	NC	20K	
V28	21AXP22A	† 11K	320K	● † 330K	† 7800Ω	† 3600Ω	60K	● † 250K	NC	30Meg
		Pin 10 NC	Pin 11 ● † 330K	Pin 12 320K	Pin 13 † 2700Ω	Pin 14 † 11K				

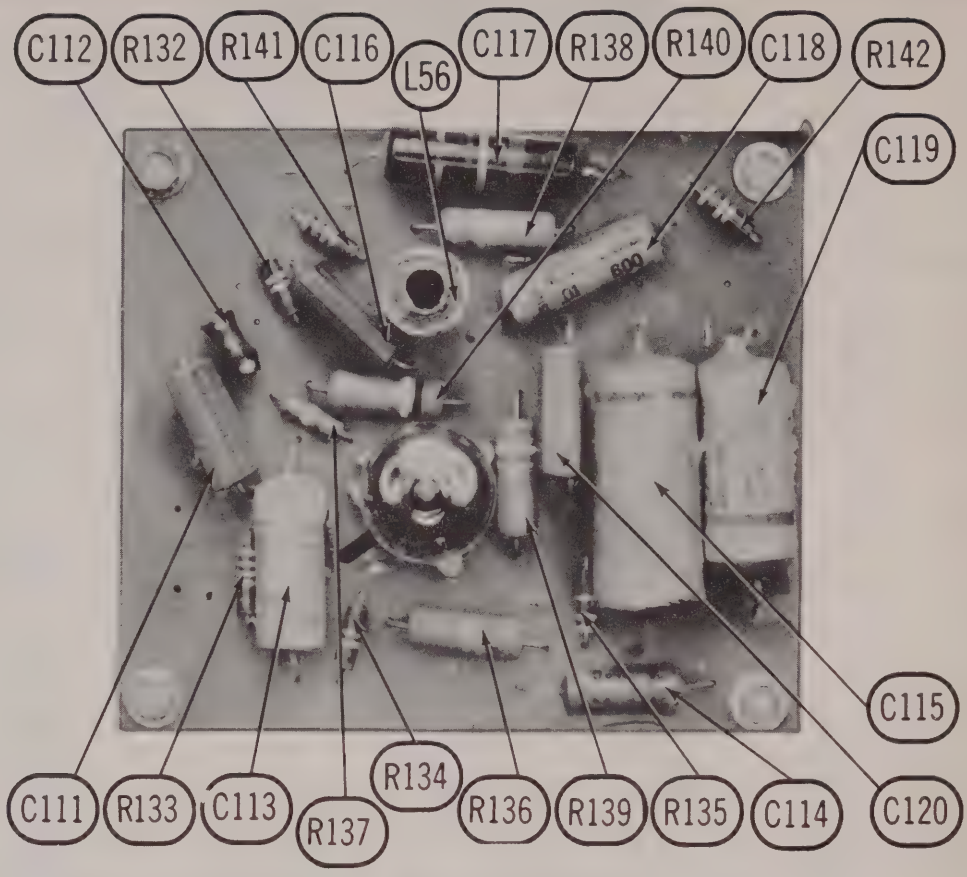
* MEASURED IN UHF POSITION.
† MEASURED FROM PIN 2 OF V26.
● THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
■ MEASURED FROM PIN 2 OF V12.
‡ MEASURED FROM 150V SOURCE.
NC NO CONNECTION

TUBE PLACEMENT CHART

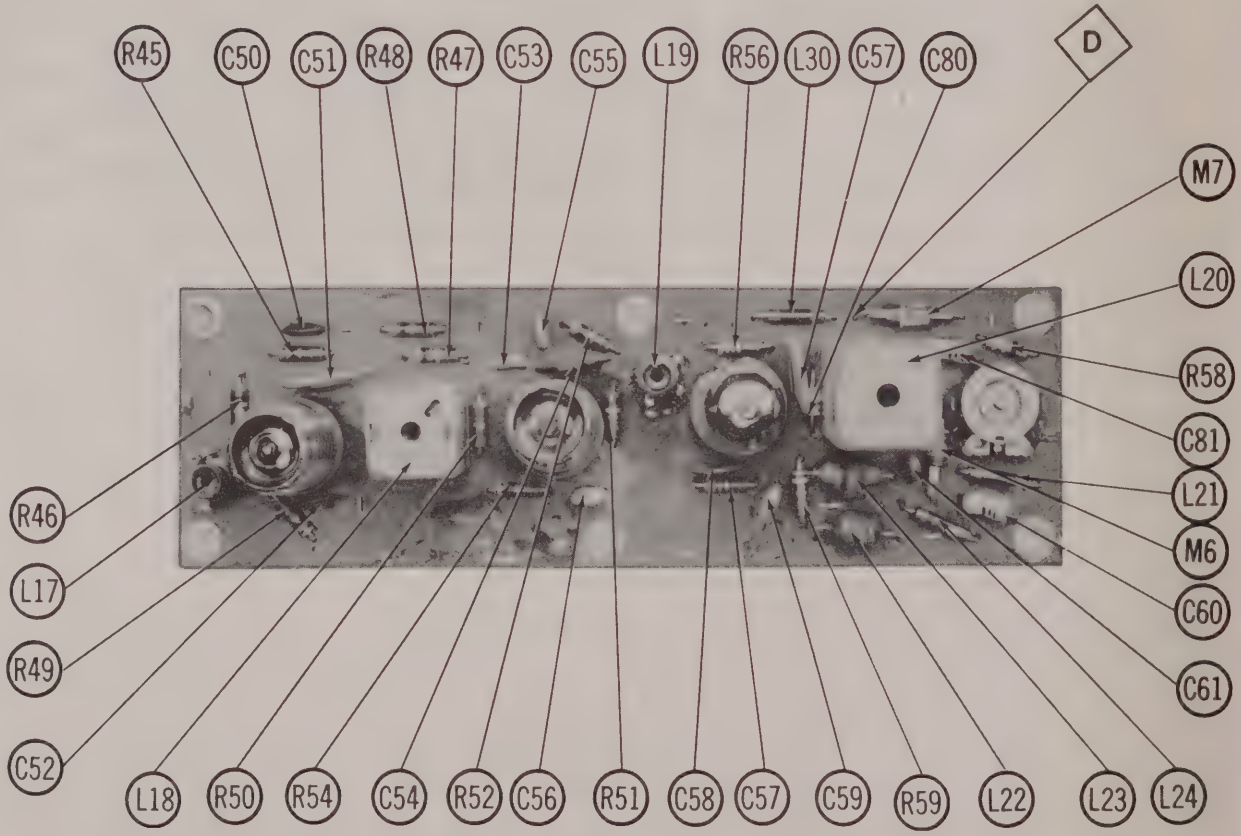
PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



RCA VICTOR MODELS 21-CS-7815, U, 21-CS-7817, U, 21-CT-7835, U, 21-CT-7837, U, 21-CT-7855, U, 21-CT-7857, U, 21-CT-7865, U, 21-CT-7866, U, 21-CT-7867, U, (Ch. CTC5, A, B, C, D,E)



HORIZONTAL OSC. PRINTED BOARD



VIDEO IF PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	UHF Osc.	6AF4A	
V2	RF Amplifier	6BQ7A	
V3	Mixer Osc.	6X8	
V4	1st Video IF Amplifier	6DE6	
V5	2nd Video IF Amplfier	6DE6	
V6	3rd Video IF Amplfier	6CB6	
V7	Video Amp.-Horiz. Blanking Amp.	6AW8	
V8	Video Output	12BY7A	
V9	AGC Keying-Sync Separator	6U8	
V10	Sound IF Amplifier	6AU6	
V11	Ratio Det.-AGC Clamper-AF Amplifier	6T8	
V12	Audio Output	6AQ5	
V13	Sync Amp.-Vert. Mult.	6CG7	
V14	Vert. Mult.-Vert. Output	6AQ5	

ITEM No.	USE	TYPE	NOTES
V15	Horiz. AFC-Horiz. Osc.	6CG7	
V16	Horiz. Output	6CB5A	
V17	Damper	6AU4GTA	
V18	Focus Rectifier	1V2	
V19	HV Rectifier	3A3	
V20	HV Regulator	6BK4	
V21	Chroma Bandpass Amp.-Color Killer	6AW8	
V22	Burst Keyer — Burst Amp.	6AN8	
V23	Chroma Ref. Osc.	6CB6	
V24	G-Y Demodulator	12AT7	
V25	B-Y Demodulator	12AT7	
V26	LV Rectifier	5U4GB	
V27	LV Rectifier	5U4GB	

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

PICTURE TUBE

ITEM No.	REPLACEMENT DATA				NOTES
	RCA Victor PART No.	CBS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	
V28	21AXP22A			21AXP22A 21AXP22	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	▲80	450	102786	AFH2-94-45	BO480	FP264.5	TMD-58	D-255	TVL-2720
B	▲40	200							
C2A	▲80	450	102786	AFH2-94-45	BO480	FP264.5	TMD-58	D-255	TVL-2720
B	▲40	200							
C3A	▲50	450	102161	AFH3-154-40		FP240		Q-320	TVL-4739.5
B	▲50	350				TC70			
C	■5	450							
C4	5	50	78943	SRE50V5	BR550	TC30	TD-5-50	MMT-0505	TVA-1303
C5A	▲80	450	102786	AFH2-94-45	BO480	FP264.5	TMD-58	D-255	TVL-2720
B	▲40	200							
C6	2	350	78920	PRS450V2	BR245	TC60	TD-2-450	MT-4502	TVA-1701

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	RCA Victor PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C7	1-4				829-4		3115-E	CT551		
C8	1000		79559	EF-001	MFT-1000				503C-D1	
C9	1000		79559	EF-001	MFT-1000				503C-D1	
C10	1000		79559	EF-001	MFT-1000				503C-D1	
C11	18									
C12	5				DD-050	G011	ED-5	ZT-555	5GA-V5	
C13	27			BPD-000025	DD-250	G027	ED-27	UC-5427	5GA-Q27	
C14	33			SI 33	D6-330	G029	ED-33	UC-5433	5GA-Q33	
C15	270		77838	SI 270	D6-271	G054	ED-270	UC-5327	5GA-T27	
C16	1-4		76532		829-4		3115-E	CT551		
C17	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C18	220		100672	BPD-0002	DD-221	G051	ED-220	UC-5322	5GA-T22	
C19	1000		77084	EF-001	MFT-1000				503C-D1	
C20	.47	200		P288N-47		CUB2P47		GEM-2047	2TM-P47	
C21	220		100672	BPD-0002	DD-221	G051	ED-220	UC-5322	5GA-T22	
C22	220		100672	BPD-0002	DD-221	G051	ED-220	UC-5322	5GA-T22	
C23	1000		77252	BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C24	10000		73960	BPD-01	DD-103	K082	ED-01	DC511	5HK-S1	
C25	470		79293	BPD-00047	DD-471	K060	ED-470	UC-5347	5GA-T47	
C26	.8-3		77151		829-3		532-A	CT565A		
C27	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C28	.68		71504		TCZ-R68	TZ02	TCO-.68			
C29	.68		71504		TCZ-R68	TZ02	TCO-.68			
C30	270		77838	SI 270	D6-271	G054	ED-270	UC-5327	5GA-T27	
C31	1000		77252	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C32	10		102305	SI 10	D6-100	G018	ED-10	UC-541	5GA-Q1	
C33	47		102882	BPD-000047	DD-470	G033	ED-47	UC-5447	5GA-Q47	
C34	.8-3		77151		829-3		532-A	CT565A		
C35	10		102883	SI 10	D6-100	G018	ED-10	UC-541	5GA-Q1	
C36	1.2		78532							
C37	.8-3		77913		829-3		532-A	CT565A		
C38	1000		77084	EF-001	MFT-1000				503C-D1	
C39	.68		71504		TCZ-R68	TZ02	TCO-.68			
C40	1-4		100671		829-4		3115-E	CT551		
C41	56			SI 56	D6-560	G036	ED-56	UC-5456	5GA-Q56	
C42	1000		77084	EF-001	MFT-1000				503C-D1	
C43	1000		77084	EF-001	MFT-1000				503C-D1	
C44	470		79293	BPD-00047	DD-471	K060	ED-470	UC-5347	5GA-T47	
C45	12			BPD-00001	DD-100	G019	ED-12	UC-5412	5GA-Q12	
C46	2									
C47	8									Note 1
C48	10		55326							Note 1
C49	22		100924							
C50	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C51	680		102237							
C52	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C53	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C54	680		102237							
C55	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C56	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C57	680		102237							
C58	1000		102234	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C59	1000		78623	BPD-001	DD-102	K069	ED-1000	DC521	5HK-D1	
C60	10		102205	SI 10	D6-100	G018	ED-10	UC-541	5GA-Q1	
C61	22		102793	N750-SI 22	TCN-22	TN06	TC7-22		5TCU-Q22	

CAPACITORS (cont)

ITEM No.	RATING CAP	RATING VOLT	REPLACEMENT DATA RCA Victor PART No.	ARROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C63	680		102321	BPD-00068	DD-681	RD65	ED-680	UC-5368	SGA-T68	
C63	2200		102333							
C64	.1	300	75351	P588N-1	DF-104	CUB3P1			GEM-201	2TM-P1
C65A	15		75677	BPD-23101	DD3-103	DR082	(ED-01	DC5U	5HK-251	
B							ED-01	DC5U		
C68	68		102794	51 32	D6-320	G024	ED-23	UC-5422	5GA-422	
C67	680		102321	BPD-00068	DD-681	RD65	ED-680	UC-5368	SGA-T68	
C68	32	300	100850	P588N-23		CUB3P32		2TM-P32	3GA-T1	
C69	100		103208	61 100	D6-101	G042	ED-100	UC-531	5GA-T1	
C70	330		103239							
C71	2200		103173	BPD-0022	DD-302	ED73	GP-2200	DC522	5HK-D22	
C73	68		103201	61 68	D6-680	G036	ED-68	UC-5458	5GA-456	
C73	470		78423	BPD-00047	DD-471	RD60	ED-470	UC-5347	5GA-T47	
C74	.047	300	78921-A	P588N-047	DF-503	CUB3F1		GEM-3147	3TM-P47	
C75	.0022	600	103203	P668N-0022	DD-222	CUD4D32	ED-0022	GEM-4223	4TM-D22	
C76	.47	300	100239	P568N-47		CUB3P47		GEM-3047	3TM-P47	
C77	10000		73990	BPD-01	DD-103	RD82	ED-01	DC5U	5HK-61	
C78	10000		73990	BPD-01	DD-103	RD82	ED-01	DC5U	5HK-61	
C79	10000		73990	BPD-01	DD-103	RD82	ED-01	DC5U	5HK-61	
C80	5.5		71800	NPO-81 5.5	TC2-1R5	TZ04	TCC-1.5	2T-5S15	5TCC8-V15	
C81	10		103205	81 10	D6-100	G018	ED-10	UC-541	5GA-41	
C83	6.7			NPO-81 6.7	TC2-6R7	TZ07	TCC-6.7	2T-5S67	5TCC8-V67	
C83	56		103207	81 56	D6-560	G036	ED-56	UC-5456	5GA-456	
C84	330		103233							
C86	10000		73990	BPD-01	DD-103	RD82	ED-01	DC5U	5HK-61	
C86	10000		73990		DD-103	RD82	ED-01	DC5U	5HK-61	
C87	1300		103232							
C88	2300		103173							
C89	.0018	400		P488N-0018	DD6-182	CUD4D18	ED-0018	GEM-4218	4TM-D18	
C90	.01	200		P268N-01	DD-103	CUB3S1	ED-01	GEM-212	2TM-S1	
C91	.022	300	103080	P368N-022	DD-223	CUB3S23	ED-023	GEM-3223	3TM-S22	
C93	1000		103234							
C93	.0033	600		P668N-0022	D6-332	CUD6D33	ED-0033	GEM-6233	6TM-D33	Note 2
C94	.0033	1600	73819	P1688N-0033		CUD6D33		GEM-16233	16TM-D33	
C95	330		39640	1468-00033						
C96	.1	400	77423	P488M-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C97	330		103229	BPD-00033	DD-331	G094	ED-330	UC-5333	5GA-T33	
C98	33	600	100389	BPD-033	DF-303	CUB4S33		GEM-4333	4TM-S33	
C99	1000		78623	BPD-001	DD-102	RD69	ED-1000	DC521	5HK-D1	
C100	330		103238	BPD-0001	DD-331	G051	ED-330	UC-5333	5GA-T32	
C101	.01	400	103230	P488N-01	D6-103	CUB4S1	ED-01	GEM-411	4TM-S1	
C102	.0039	400	103218	P488N-0039	D6-403	CUB4D39	ED-004	GEM-4239	4TM-D39	
C103	.033	300	103227	P588N-033	DF-333	CUB3S33		GEM-3233	3TM-S33	
C104	.33	300	103215	P388N-33		CUB3P33		GEM-2033	3TM-P33	
C105	.0056	400	103504	P488N-056	DF-503	CUB4S56		GEM-4256	4TM-S56	
C106	.0027	1800	73818	P1688N-0027	DD3D-272	CUD6D27	ED-0027	GEM-16227	16TM-D27	
C107	.13	600	103176	P668N-18		CUD6P13	ED-13	GEM-6013	6TM-P13	
C108	.0015	400	103216	P488N-0015	D6-152	CUD4D15	ED-0015	GEM-4215	4TM-D15	
C109	01	200	77424	P288N-01	D6-103	CUB2S1	ED-01	GEM-212	2TM-S1	
C110	.1	300	75351	P588N-1	DF-104	CUB3P1		GEM-301	3TM-P1	
C111	33		78474	[illegible]				MCL482		
C112	33		103203	51 33	D6-330	G040	ED-32	UC-5347	5GA-Q33	
C113	.047	400	77423	P488Y-047	DF-503	CUB4S47		GEM-4147	4TM-S47	
C114	.01	200	77424	P288N-01	D6-103	CUB2S1	ED-01	GEM-211	2TM-S1	
C115	.1	300	100390	P588N-47		CUB3P47		GEM-3047	3TM-P47	
C118	330			1468-00033						
C117	01	600	73584	P668N-01	D6-103	CUD6S1	ED-01	GEM-611	6TM-S1	Note 1
C118	01	600	103231	P668N-01	D6-103	CUD6S1	ED-01	GEM-611	6TM-S1	
C119	33	300	78740	P588N-32		CUB3P32		[illegible]	3TM-P32	
C120	1000		73963	1487-001				MC-255		
C121	.1	600	103176	P668N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C122	33	600	103178	P668N-33		CUB6P33		[illegible]	6TM-P32	
C123	560	2000	102791							
C124	160	2000	102791							
C125	47	300	78148	P788N-47		CUB2P47		GEM-2047	2TM-P47	
C126	47	300	78148	P588N-47		CUB3P47		GEM-3047	3TM-P47	
C127	.15	600	103177	P668N-15		CUD6P15		GEM-6015	6TM-P15	
C128	.1	600	103176	P668N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C129	.1	600	103790							
C130	.0033	600	103174	P668N-0033	D6-332	CUD6D33	ED-0033	GEM-6233	6TM-D33	
C133	82		100154							
C133	.047	600	103172	P668N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C133	10000		73960	BPD-01	DD-103	RD82	ED-01	DC521	5HK-61	
C134	83		103203	51 83	D6-830	G040	ED-82		5GA-Q82	
C135	10000		73960	BPD-01	DD-103	RD82	ED-01	DC521	5HK-61	
C136	330		102238	BPD-0002	DD-331	G051	ED-330	UC-5332	5GA-T32	
C137	10000		73960	BPD-01	DD-103	RD82	ED-01	DC521	5HK-61	
C138	.1	600	73949	P668N-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C139	.1	400	78923	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C140	10		103210	51 10	D6-100	G018	ED-10	UC-541	5GA-41	
C141	470		78822	BPD-0047	DD-471	RD60		GEM-4147	4TM-S47	
C143	470		102230	BPD-00047	DD-471	ED60	ED-470	UC-5347	5GA-T47	
C143	.1	300	75351	P588N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C144	150		102209	51 150	D6-151	G044	ED-120	UC-5312	5GA-T12	
C145	100		103205	51 100	D6-101	G043	ED-100	UC-531	5GA-T1	
C146	.1	400	77423	P288N-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C147	.022	100	102080	P588N-022	DF-303	CUB3S23	ED-023	GEM-3223	3TM-S22	
C148	1.8		102236							
C149	10000		73960	BPD-01	DD-104	RD82	ED-01	DC521	5HK-61	
C150	470		102230	BPD-00047	DD-471	ED60	ED-470	UC-5347	5GA-T47	Note 1
C151	3.5		103204		DD-3R5	RD60			5HK-61	Note 1
C152	10000		73960	BPD-01	DD-103	RD82	ED-01	DC521	5HK-61	
C153	18			51 18	D6-180	G032	ED-18	UC-5418	5GA-Q18	Note 1
C154	56			51 56	D6-560	G036	ED-56	UC-5456	5GA-Q56	Note 1
C155A	10000			BPD-2301	DD3-103	RD82	(ED-01	DC521	5HK-581	Note 1
B	10000						ED-01	DC521		
C156	.1	400	78923	P488N-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C157	13		103211	51 13	D6-130	G019	ED-13	UC-5413	5GA-Q13	
C158	15		103212	51 15	D6-150	G031	ED-15	UC-5415	5GA-Q15	
C159	.39	300	103179	P288N-39		CUB2P39		GEM-2039	2TM-P39	
C160	.39	300	103179	P588N-39		CUB3P39		GEM-3039	3TM-P39	
C161	.47	300	78148	P588N-47		CUB3P47		GEM-3047	3TM-P47	
C162	.47	200	78148	P288N-47		CUB2P47		GEM-2047	2TM-P47	
C163	.047	600	7392	P668N-047	DF-503	CUB6S47		GEM-6147	6TM-S47	
C164	10000		73960	BPD-01	DD-103	BYA581	GP-10000	DC521	5HK-61	Note 3

Note 1: See production changes page 9.
Note 2: As .0068 used in chassis CTC-5D and CTC-5E only.
Note 3: Not used in some versions.

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	250K		103156				UP-254	Brightness
R1B	1Meg						UR6-T25A	Volume Tap at 250K
C	Switch						UE 26T	
R2A	2.5Meg		103146	F1-46			L.E. 30D1	Vertical Hold
R2B	5Meg			R2-83				Vertical Height
R3A	500Ω		102151	F1-1			UE 77	Contrast
R3B	500K			R2-40				AGC
R4	500Ω		103157					Blue
R5A	2.5Meg		103144	F1-76	A47-1000-S	Q11-108	U4	Color Saturation
B	Shaft			R2-51	Not Req.	Not Req.	Not Req.	
C	Switch			K5-6	RS-2	SWE-12	U6-26	
R6A	2.5Meg		103144	F1-76	SWE-12		UE-1051	Vertical Linearity
R6B	1Meg			R2-51				Red Screen
R7A	1Meg		102143	F1-51			UE-1081	Blue Screen
R7B	1Meg			R2-51				Green Screen
R8A	100Ω		102140				UE 70	Red DC Tap at 75Ω
R8B	100Ω							Green DC Tap at 75Ω
R9A	2Meg		102145	F1-67			UE-1872	Vertical Centering
R9B	2Meg			R2-87				Blue Background
R10A	100Ω		102142				UE-76	Green Background
R10B	100Ω							Blue Vertical Amp.
R11A	100Ω		102142				UE-76	Blue Vertical Tilt.
R11B	100Ω							Green Vertical Amp.
R12A	100Ω		102142				UE-76	Green Vertical Tilt
R12B	100Ω							Red Vertical Amp.
R13A	100Ω		102140				UE 70	Red Vertical Tilt
R13B	100Ω							Red DC Tap at 75Ω
R14A	40Ω	4W	102148	VX-118	A10 40	WP540	M40PK	Green DC Tap at 75Ω
B	Shaft			Not Req.	FKS-1/4	Not Req.	Not Req.	Vertical Centering
R15A	1Meg		102152	AB-69	A47 1Meg S	Q11-137	U54	Killer Threshold
B	Shaft			AK-1	FKS-1/4	Req.	Not Req.	
R16	10Ω		103149				U1	Horizontal Centering
R17	1000Ω	1W	102150					Focus
R18	500Ω							Sound Reject

Note #1: A 5600 ohm (W or 4700 ohm (W resistor may be used in this application, replace with same value resistor as original.
Note #2: A 2700 ohm (W or 3300 ohm (W resistor may be used in this application, replace with same value resistor as original.
Note #3. See Production Changes Page 9.
Note #4 Not used in some versions.

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	NOTES
R19	5600Ω		BTS 5600	Note #1	
R20	2700Ω		BTS-2700	Note #2	
R21	10000Ω	1	513256	BTS-10000	
R22	10000Ω		502310	BTS-10K	
R23	10K		502310	BTS-10K	
R24	120Ω		502112	BTS 120	
R25	100Ω		502110	BTS-100	
R26	220Ω		502112	BTS 120	
R27	100K		502410	BTS 100K	
R28	1Meg		502510	BTS-1Meg	
R29	1Meg		502510	BTS-1Meg	
R30	10000Ω	1	513210	BTA 10000	
R31	10000Ω		502310	BTS 10000	
R32	4700Ω		502247	BTS-4700	
R33	100K		502410	BTS-100K	
R34	100K		502410	BTS 100K	
R35	150		502205	BTS-15	
R36	2700Ω			BTS-2700	
R37	100K		502410	BTS-100K	
R38	12K	2	522312	BTB-12K	
R39	10K	1	513210	BTA-10K	
R40	120Ω		502112	BTS 120	
R41	68000	2	522288	BTB 6800	
R42	56K		502356	BTS-56K	
R43	39000		502339	BTS-3900	
R44	470K		502447	BTS-470K	
R45	68Ω	5%	502068		Note #3
R46	.00K	5%	502460		Note #3
R47	.000Ω		502310	BTS-1000	
R48	1000Ω		502310	BTS-1000	
R49	68Ω	5%	502068	BTS-68 5%	Note #3
R50	82000	5%	502355		
R51	82K	5%			
R52	1000Ω		502310	BTS-1000	
R53	39000	7	102316	PWT-3900	
R54	68Ω	5%	502068	BTS-68 5%	Note #3
R55	68K	5%			
R56	4700		503147	BTS-470	
R57	1800	5%	503118	BTS-180 5%	
R58	100K		503150	BTS-100K	
R59	39000	5%	503239		
R60	2200		503122	BTS-220	
R61	56K		513256	BTS-56K	
R62	15K	2	523315	BTB-15K	
R63	10000	5%	513256	BTA-10000 5%	
R64	330	5%	503033	BTS-33 5%	
R65	47000	5%		BTS-47000 5%	Note #3
R66	.80K		503418	BTS-180K	
R67	1800	5%	503318	BTS-1800 5%	
R68	680K		503458	BTS-680K	
R69	22K	2	522322	BTB-22K	
R70	3900	2	522339	BTB-3900	
R71	2200	5%	503322	BTS-220 5%	
R72	1000	5%	503310	BTS-100 5%	
R73	18K		503318	BTS-18K	
R74	56K		503356	BTS-56K	
R75	3300		503333	BTS-3300	
R76	9100	5%	503191	BTA-910 5%	
R77	9100	5%	503191	BTA-910 5%	
R78	2700	7	102789	PWT-2500	
R79	.00K		502410	BTS-100K	
R80	00K	2	522410	BTB-100K	
R81	00K	2	522410	BTB-100K	
R82	33K		502333	BTS-33K	
R83	47K		503347	BTS-47K	
R84	00K	2	522410	BTB-100K	
R85	20K	5%	503412	BTS-120K 5%	
R86	18Ω		502318	BTS-18K	
R87	50K	5%	503415	BTS-150K 5%	
R88	33K	5%	503335	BTS-33K 5%	
R89	820K	5%	503418	BTS-820K 5%	

RESISTORS (cont)

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA RCA Victor PART No.	IRC PART No.	NOTES
R90	4700Ω	1	513247	BTA 4700	
R91	1.2Meg		503515	BTS-1.2Meg	
R92	1Meg		503510	BTS-1Meg	
R93	270K		502427	BTS-270K	
R94	18K		502318	BTS-18K	
R95	22K		502322	BTS-22K	
R96	27K		502327	BTS-27K	
R97	47K		502347	BTS-47K	
R98	1800Ω		502318	BTS-1800	
R99	120Ω		502112	BTS-120	
R100	27K		502327	BTS-27K	
R101	39K		502339	BTS-39K	
R102	22K		502322	BTS-22K	
R103	10Meg		503610	BTS-10Meg	
R104	330K		502433	BTS-330K	
R105	1.5Meg	5%	503515	BTS-1.5Meg	
R106	330K	5%	503433	BTS-330K 5%	
R107	4700	2	523247	BTA 470	
R108	82Ω	1	31898	BTA-82	
R109	1Meg		503510	BTS-1Meg	
R110	560K		503456	BTS-560K	
R111	33K		502333	BTS-33K	
R112	6800Ω	1	512288	BTA-6800	
R113	27000	5%	503327	BTS-27K 5%	
R114	120K		503412	BTS-120K	
R115	1Meg		503510	BTS-1Meg	
R116	2.2Meg		503522	BTS-2.2Meg	
R117	39K		503439	BTS-39K	
R118	18K	5%	503318	BTS-18K 5%	
R119	15K		503315	BTS-15K	Note #3
R120	82K	5%	503382	BTS-82K 5%	
R121	470K		502447	BTS-470K	
R122	6.8Meg		503568	BTS-6.8Meg	
R123	2.7Meg	1	512527	BTA-2.7Meg	
R124	100K		503410	BTS-100K	
R125	5.9Meg	5%		BTS-5.9Meg 5%	Note #3
R126	120K		502412	BTS-120K	
R127	2.7Meg	5%		BTS-2.7Meg 5%	Note #3
R128	27000	7	102789	PWT-2500	
R129	12000				
R130	12000				
R131	27K		502327	BTS-27K	
R132	150K		502415		
R133	330K		502433		
R134	820K		502482		
R135	3900Ω		502239		
R136	82K	1	512283	BTA-82K	
R137	150K	5%	503415	BTS-150K 5%	
R138	82K			BTS-82K	Note #3
R139	39K	1	512339	BTA-39K	
R140	100K	5%	512410	BTA-100K 5%	
R141	68K	5%	502368		
R142	470K		502447	BTS-1Meg	
R143	1Meg		502510	BTS-1Meg	
R144	56Ω		503056	BTS-56Ω	
R145	56Ω		502056	BTS-56	
R146	10K	10	79183	PWD-10K	
R147	10Meg	2	522610	BTB-10Meg	
R148	10Meg	2	522610	BTB-10Meg	
R149	10Meg	2	522510	BTB-10Meg	
R150	1Meg	2	522510	BTB-1Meg	
R151	1Meg	2	522510	BTB-1Meg	
R152	10K	2	503310	BTS-10K	
R153	1.8Meg	5%	512518	BTA-1.8Meg	
R154	1.8Meg	5%	512518	BTA-1.8Meg	
R155	100Meg	1	514710		
R156	4700Ω	1	512247	BTA-4700	
R157	22Ω	2	523928	BTB-22	
R158	22Ω	2	523022	BTB-22	
R159	27Ω	2		BTB-27	Note #3
R160	68000	7	103171	1 3/4A-7000	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	SEC. 1	SEC. 2	SEC. 3	REPLACEMENT DATA RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC	700VCT (5V @ 6.48A		6.3V @ 6A	102131					
				SEC 4 8.5V & 2.1A						

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	RCA Victor PART No	Halldorson PART No	Merit PART No	RCA TYPE No.	Ram PART No	Stancor PART No	Thordarson PART No	Triad PART No
T2	Horiz. Output Trans.	102153							
T3	Vert. Output Trans.	102153							
T4A	Yoke (Horiz. 18MDI)	102295 ①							
B	(Vert. 18MDI)	102109 ②							
T5	Horiz. Linearity (1.34MH – 1.2MH)	102137							
T6	Width Choke (.38MH)	102181							
T7	Green Horiz. Amp. Coil	102138	H F803	MWC 10 ③	20LR4	WC-1	WC-16	WC-12 ④	
T8	Blue Horiz. Amp. Coil	102138	H F803	MWC 10 ③	20LR4	WC-1	WC-16	WC-13 ④	
T9	Red Horiz. Amp. Coil	102138	H F803	MWC 10 ③	20LR4	WC-1	WC-16	WC-12 ④	
T10	Green Horiz. Tilt Coil	102139							
T11	Blue Horiz. Tilt Coil	102139							
T12	Red Horiz. Tilt Coil	102139							
T13	Convergence Yoke	102295 ⑤							

① Includes resistors R139, R150, capacitor C131, and yoke plug.
② Yoke Plug
③ Use red & blue terms.
④ Use red & green terms.
⑤ Includes convergence yoke assembly plug (Part No. 102272)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA RCA Victor PART No	Halldorson PART No	Merit PART No	Stancor PART No	Thordarson PART No	Triad PART No	NOTES
T14	7600Ω	4Ω	100037	Z1003	A-3020	A-3849	28S48	S-82	

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP	REPLACEMENT DATA RCA Victor PART No.	QUAM PART No.	NOTES
SP1	8" 6" x 9"	PM PM	3-4Ω 3-4Ω	74664 ① 101182 ②	6A31	① Used in models 21CT8715, U, 21CS7817, U, 21CT7835, U, 21CT7837, U, 21CT7855, U, 21CT7857, U. ② Used in models 21CT7865, U, 21CT7866, U, 21CT7867, U.

COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L1	UHF Ant. Coil	79564	
L2	Fil. Choke	79565	
L3	Fil. Choke	79565	
L4	Catch. Choke	79565	
L5	UHF Osc. Coil	79567	
L6	UHF Osc. Coil	79566	
L7	UHF IF Output	79567	
L8	VHF Ant. Coils	100697	Stator complete with rotor including C-15 & R-19
L9	Neut. Coils	100898	Stator complete with rotor including C-17
L10	UHF IF Input Coil	100877	

ITEM No.	USE	RCA Victor PART No.	NOTES
L11	VHF RF Coils	100894	Stator complete with rotor including C-17, C-32, C-37, C-31, R-19, R-28, & R-39
L12	VHF Mixer Grid Coil	100695	Stator complete with rotor including C-13, C-28, C-30, C-39, R-30, R-31, R-33 & R-53
L13	VHF Osc. Coils	108881	Stator complete with rotor includes C-33, C-35, & C-37
L14	Conv. Plate	103302	

RCA VICTOR MODELS 21-CS-7815, U, 21-CS-7817, U, 21-CT-7835, U, 21-CT-7837, U, 21-CT-7855, U, 21-CT-7857, U, 21-CT-7865, U, 21-CT-7866, U, 21-CT-7867, U (Ch. CTC5, A, B, C, D,E)

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (cont)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L15	41.25MC Trap	102135				
L16	47.25MC Trap	102136				
L17	1st Video IF	10227				
L18	2nd Video IF	102262				
L19	3rd Video IF	102258				
L20	4th Video IF	102265				
L21	RF Choke	100441	19-2864			12 Microhenries
L22	Series Peaking Coil	102201	19-4060		6110	62 Microhenries
L23	Shunt Peaking Coil	102351	19-3180	TV-184	6180	180 Microhenries
L24	RF Choke	100441	19-2864			12 Microhenries
L25	Series Peaking Coil	102196	19-3180*	TV-184*	6180*	180 Microhenries Wound on 1800Ω Resistor
L26	Shunt Peaking Coil	102198	19-3180	TV-184	6180	180 Microhenries
L27	Series Peaking Coil	102197	19-3180■	TV-184■	6180■	180 Microhenries Wound on 8200Ω Resistor
L28	Series Peaking Coil	102200	19-3300		6155	300 Microhenries
L29	Shunt Peaking Coil	102199	19-3125		6153	120 Microhenries
L30	RF Choke	100441	19-2864			12 Microhenries
L31	RF Choke	100441	19-2864			12 Microhenries
L32	Sound IF	102256				
L33	Ratio Det.	102253				Tertiary Winding .3Ω
L34	RF Choke	100441	19-2864			12 Microhenries
L35	RF Choke	100441	19-2864			12 Microhenries
L36	Chroma Takeoff Trans.	102260				Includes 4.5MC Trap
L37	Bandpass Trans.	102263				Tertiary Winding - 2.6Ω
L38	Burst Keyer Plate Trans.	102251				
L39	Burst Amplifier Trans.	102250				
L40	RF Choke	100441	19-2864			12 Microhenries, Note #2.
L41	RF Choke	100441	19-2864			12 Microhenries, Note #1.
L42	Demod. Driver Pri. Trans.	102268				Tertiary Winding - .7Ω CT
L43	Demod. Driver Sec. Trans.	102266				
L44	Series Peaking Coil	102244				4.7 Millihenries
L45	Series Peaking Coil	102243				3.3 Millihenries
L46	Series Peaking Coil	102202			6156	750 Microhenries
L47	Series Peaking Coil	102245				9.6 Millihenries
L48	Series Peaking Coil	102202			6156	750 Microhenries
L49	Series Peaking Coil	102202			6156	750 Microhenries
L50	RF Choke	100441	19-2864			12 Microhenries Note #2.
L51	RF Choke	100441	19-2864			12 Microhenries Note #2.
L52	RF Choke	100441	19-2864			12 Microhenries Note #2.
L53	RF Choke	100441	19-2864			12 Microhenries Note #2.
L54	RF Choke	100441	19-2864			12 Microhenries Note #2.

* Parallel with 1800Ω resistor.
■ Parallel with 8200Ω resistor.
Note #1. See Production Changes page 9.
Note #2. Not used in some versions.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES.		REPLACEMENT DATA							NOTES
	PRI.	SEC.	RCA Victor PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	
L55	88Ω		79966							Tapped at 63Ω Horiz. Osc.
L56	50Ω		102195							Horiz. Waveform

FILTER CHOKE

ITEM No.	RATINGS			REPLACEMENT DATA					
	TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE (0 CURRENT 1000 ∿)	RCA Victor PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L57	.480A	18.5Ω	.54 Hy.	102134					C-40X

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			RCA Victor PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M-1	3" piece #26 wire		102792					
M-2	3AG	2A 250V	102182		318002, (3AG pigtail 2A)		GJV2	
M-3	C	3/10 250V	102164	102162	332-300 (C 3/10A)	346001	C 3/10	HC 0 to 3/10
M-4	C	3/4A 250V	102165	102163	332.750 (C 3/4A)	346003	C 3/4	HC 1/2 to 3/4

CRYSTAL DIODES

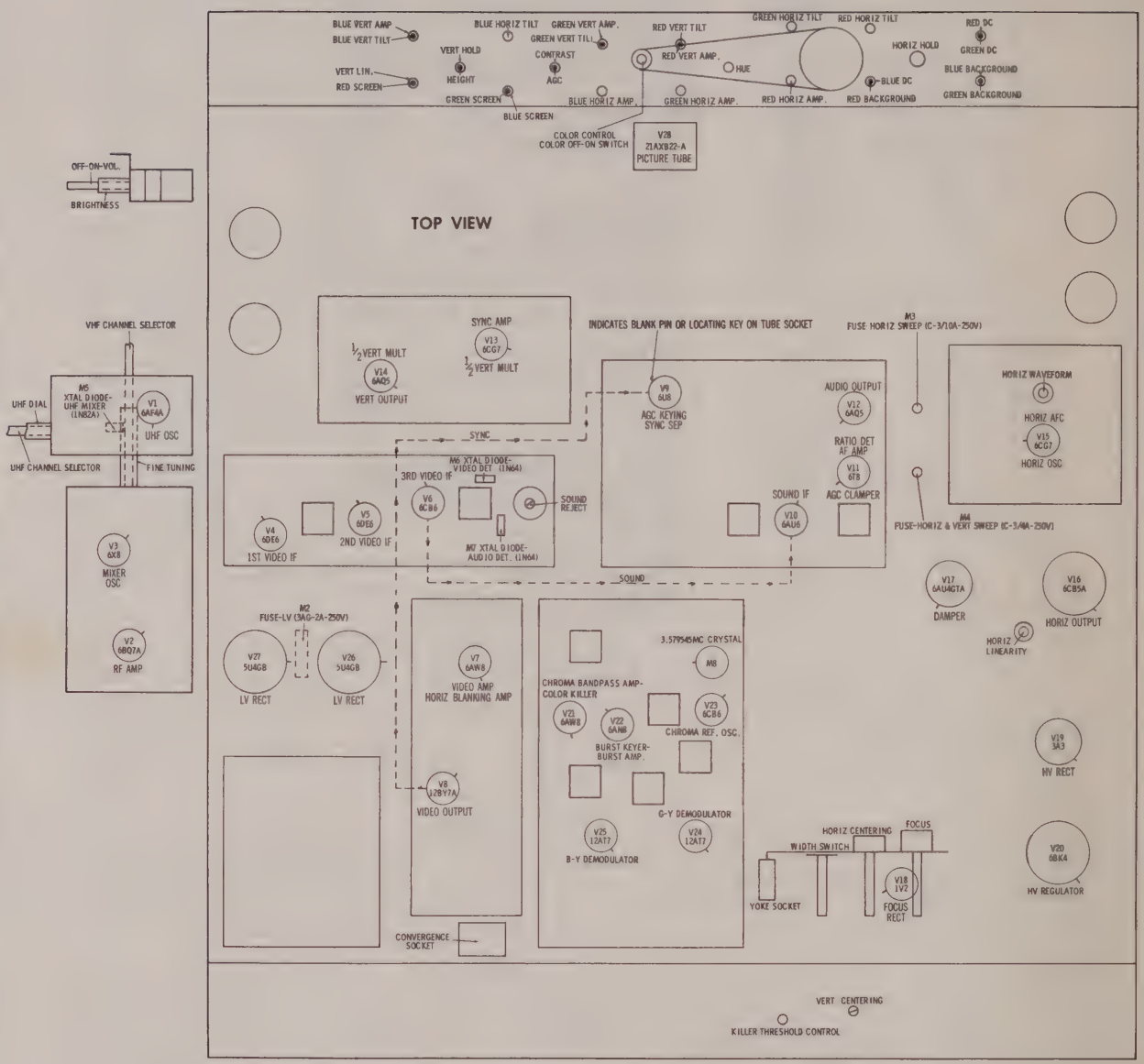
ITEM No.	ORIG. TYPE	REPLACEMENT DATA		NOTES
		RCA Victor PART No.	SYLVANIA PART No.	
M5	1N82 ♦	77489	1N82A	UHF Mixer (Clip In)
M6	1N64 *	76675	1N60	Video Detector (Pigtail)
M7	1N64 *	76675	1N60	Audio Detector (Pigtail)

♦ Some Versions May Use a K3D In This Application.
* Some Versions May Use a 1N60 In This Application.

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M8	Crystal	102249	3.579545MC Oscillator
M9	Tuner	KRK40-A	UHF/VHF, Includes VHF Tuner KRK35-A & UHF Tuner KRK36B Used With Chassis CTC5A.
		KRK40	VHF, (KRK35-C) Used With Chassis CTC5.
		KRK40-B	VHF, KRK35-C Used With Chassis CTC5B, And CTC5D.
		KRK40-C	UHF/VHF, Includes VHF Tuner KRK35-A & UHF Tuner KRK36-B Used With Chassis CTC5C, And CTC5E
M10	Ant. Matching Network	100454	Includes Coils And Caps.
M11	Delay Line	102184	Luminance Channel
M12	Switch	102844	Ant. Changeover (Slide Type)
M13	Switch	102160	Width (Rotary, Wafer Type)
M14	Magnet	79604	Color Purity
M15	Magnet	103172	Blue Beam Lateral Corrector
	Magnet	102298	Blue Beam Lateral Corrector Electromagnetic, Used In Early Production.
M16	Magnet Assembly	102495	Rim Purity (6 Reqd.)
	Printed Board	102123	Sound (Less Tubes) Chassis CTC5B and C Only.
	Printed Board	102590	Sound (Less Tubes) Chassis CTC5D and E Only.
	Printed Board	102121	Picture (Less Tubes)
	Printed Board	102125	Video (Less Tubes)
	Printed Board	102120	Vertical (Less Tubes)
	Printed Board	102122	Synchroguide (Less Tubes)
	Printed Board	102127	Chroma Plate (Less Tubes)
	Safety Glass	102278	All Models
	Bezel	102288	All Models
	Knob	100407	Horizontal Centering, Focus, Width Switch
	Knob	79533	Horizontal Frequency
	Knob	101124-B	Brightness, All Models
	Knob	102274	Color Contrast, Horizontal Hold, Hue, Tone (All Models)
	Knob	102497	Fine Tuning (All Models). Alternate Part #101276-B
	Knob	101138-B	On-Off Volume, Mahogany Grain Models 21-CS-7815, U, 21-CT-7835, U, 21-CT-7855, U, 21-CT-7865, U.
	Knob	101621-B	On-Off Volume, Walnut And Oak Grain Models 21-CT-7817, U, 21-CT-7837, U, 21-CT-7857, U, 21-CT-7866, U, 21-CT-7867, U
	Knob	101806	UHF Tuning, Model 21-CS-7815U
	Knob	101807	UHF Tuning, Model 21-CS-7817U
	Knob	102653	UHF Tuning, Models 21-CS-7835U, 21-CT-7855U, 21-CT-7865U
	Knob	102578	UHF Tuning, Models 21-CT-7837U, 21-CT-7857U, 21-CT-7866U, 21-CT-7867U
	Knob	100944-B	VHF Channel Selector, Model 21-CS-7815
	Knob	100945-B	VHF Channel Selector, Model 21-CS-7817
	Knob	100946-B	VHF/UHF Channel Selector, Model 21-CS-7815U
	Knob	100947-B	VHF/UHF Channel Selector, Model 21-CS-7817U
	Knob	102502	VHF Channel Selector, Models 21-CT-7835, 21-CT-7855, 21-CT-7865
	Knob	102503	VHF Channel Selector, Models 21-CT-7837, 21-CT-7857, 21-CT-7866, 21-CT-7867
	Knob	102500	VHF/UHF Channel Selector Models 21-CT-7835U, 21-CT-7855U, 21-CT-7865U
	Knob	102501	VHF/UHF Channel Selector, Models 21-CT-7837U, 21-CT-7857U, 21-CT-7866U, 21-CT-7867U



TUBE PLACEMENT CHART

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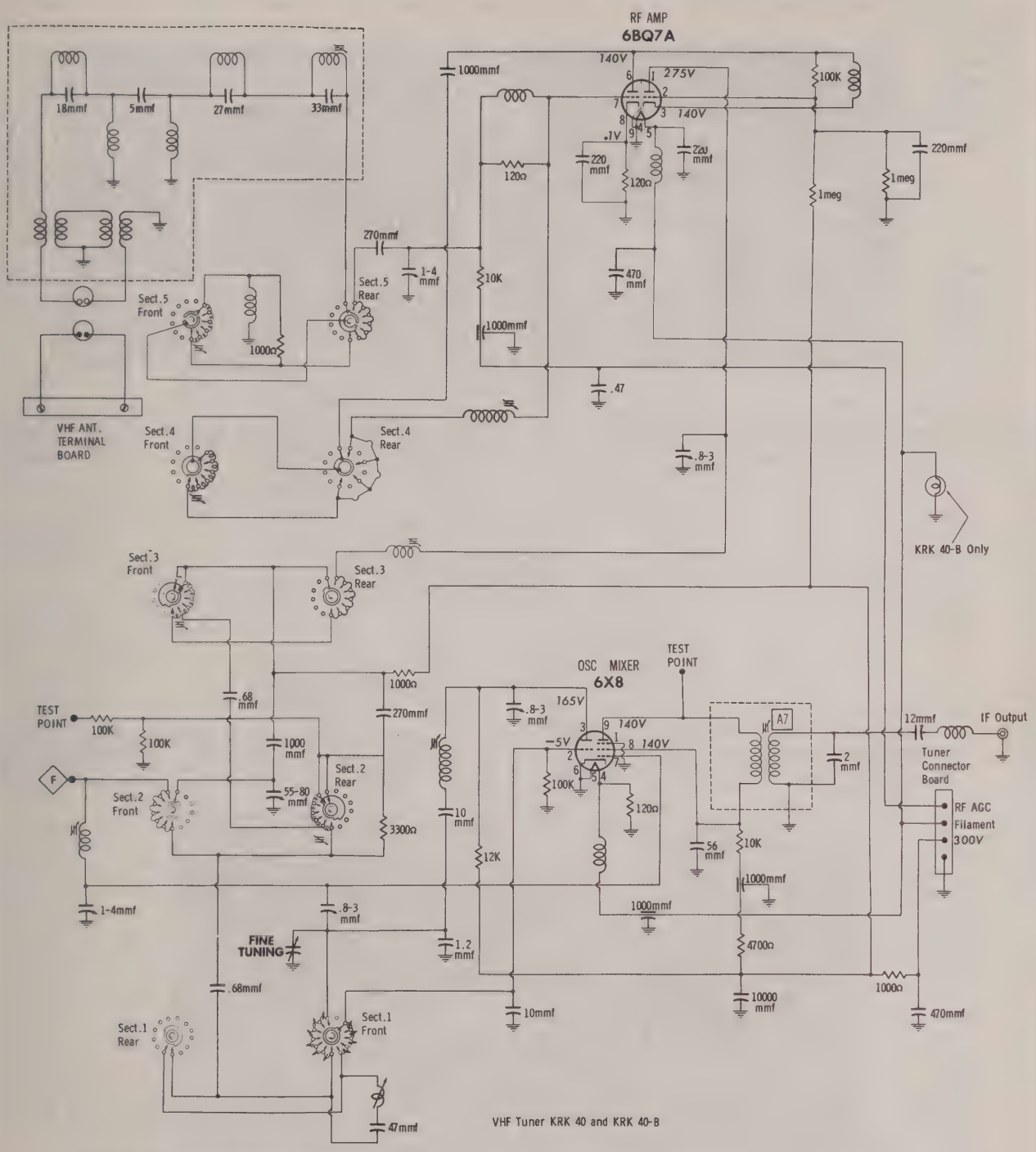

VHF Tuner KRK 40 and KRK 40-B

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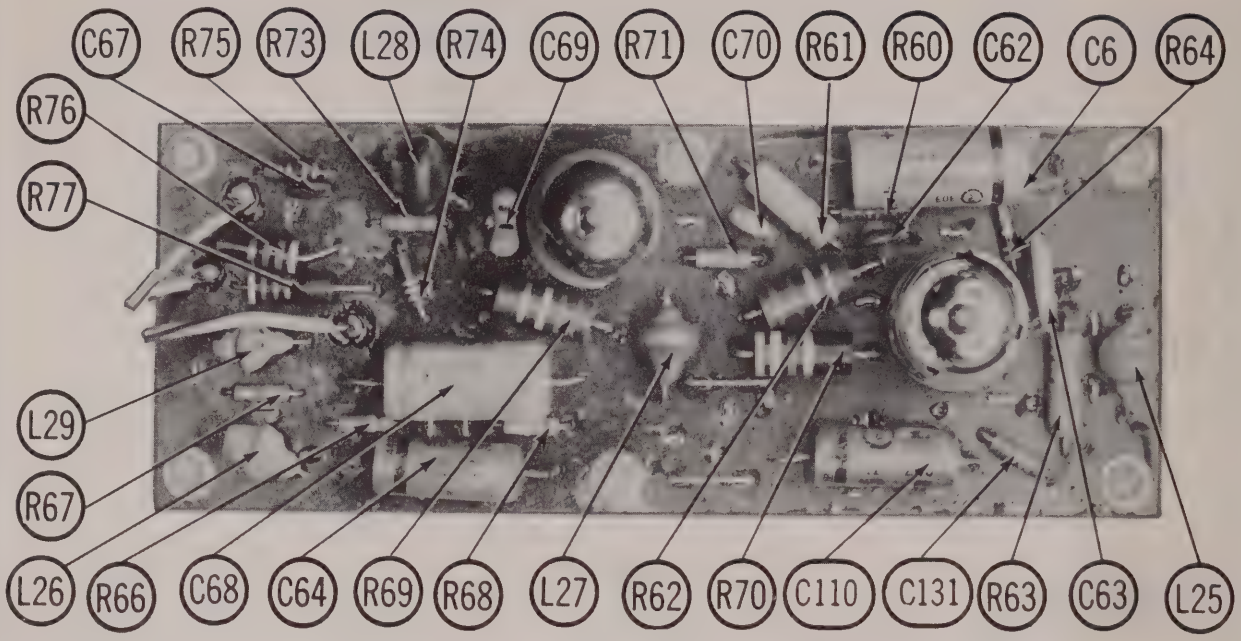
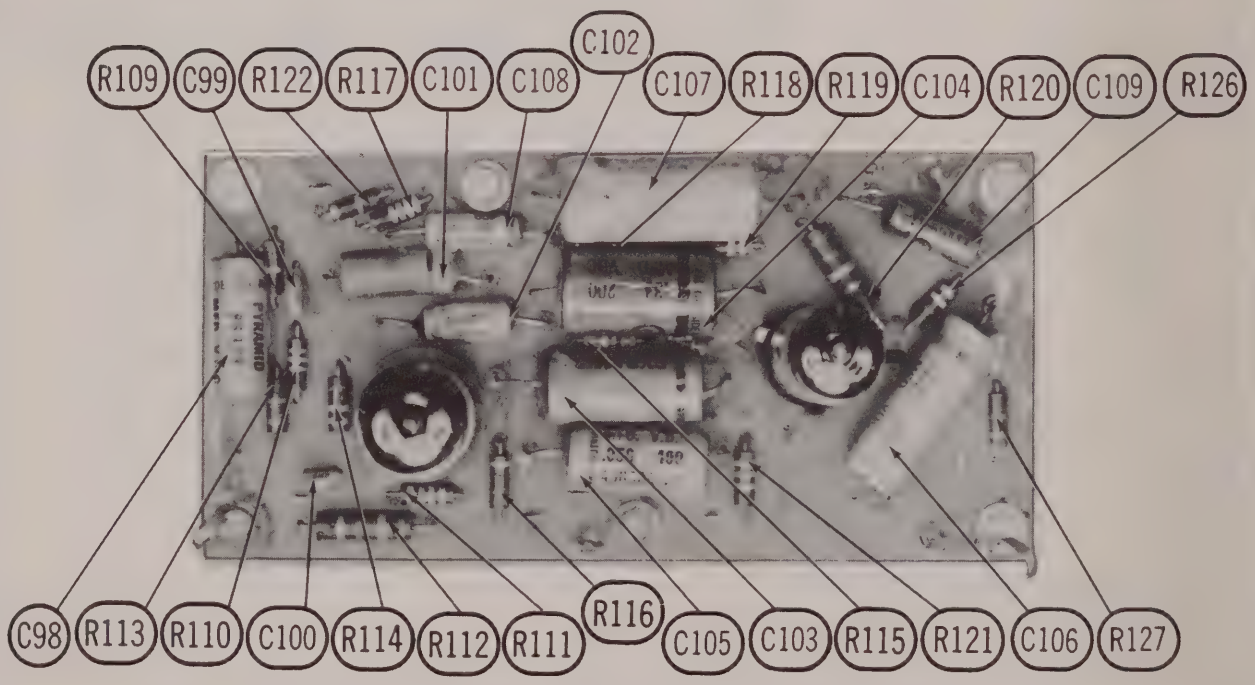
ALTERNATE VHF TUNER SCHEMATIC

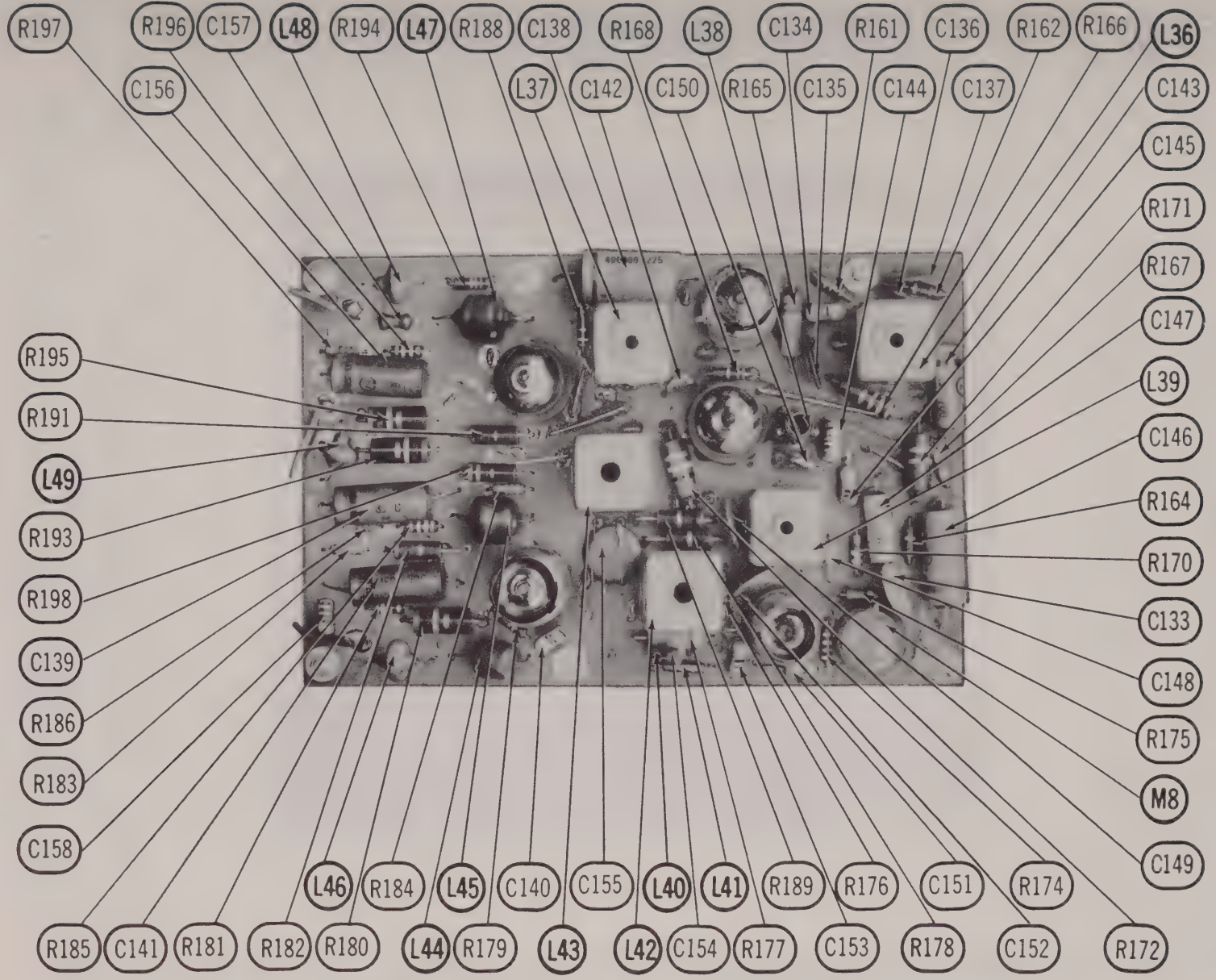
SET 353 FOLDER 11



VIDEO PRINTED BOARD



VERTICAL PRINTED BOARD



CHROMA CIRCUIT PRINTED BOARD

RCA VICTOR MODELS 21-CS-7815, U, 21-CS-7817, U, 21-CT-7835, U,
21-CT-7837, U, 21-CT-7855, U, 21-CT-7857, U, 21-CT-7865, U,
21-CT-7866, U, 21-CT-7867, U, (Ch. CTC9, A, B, C, D,E)

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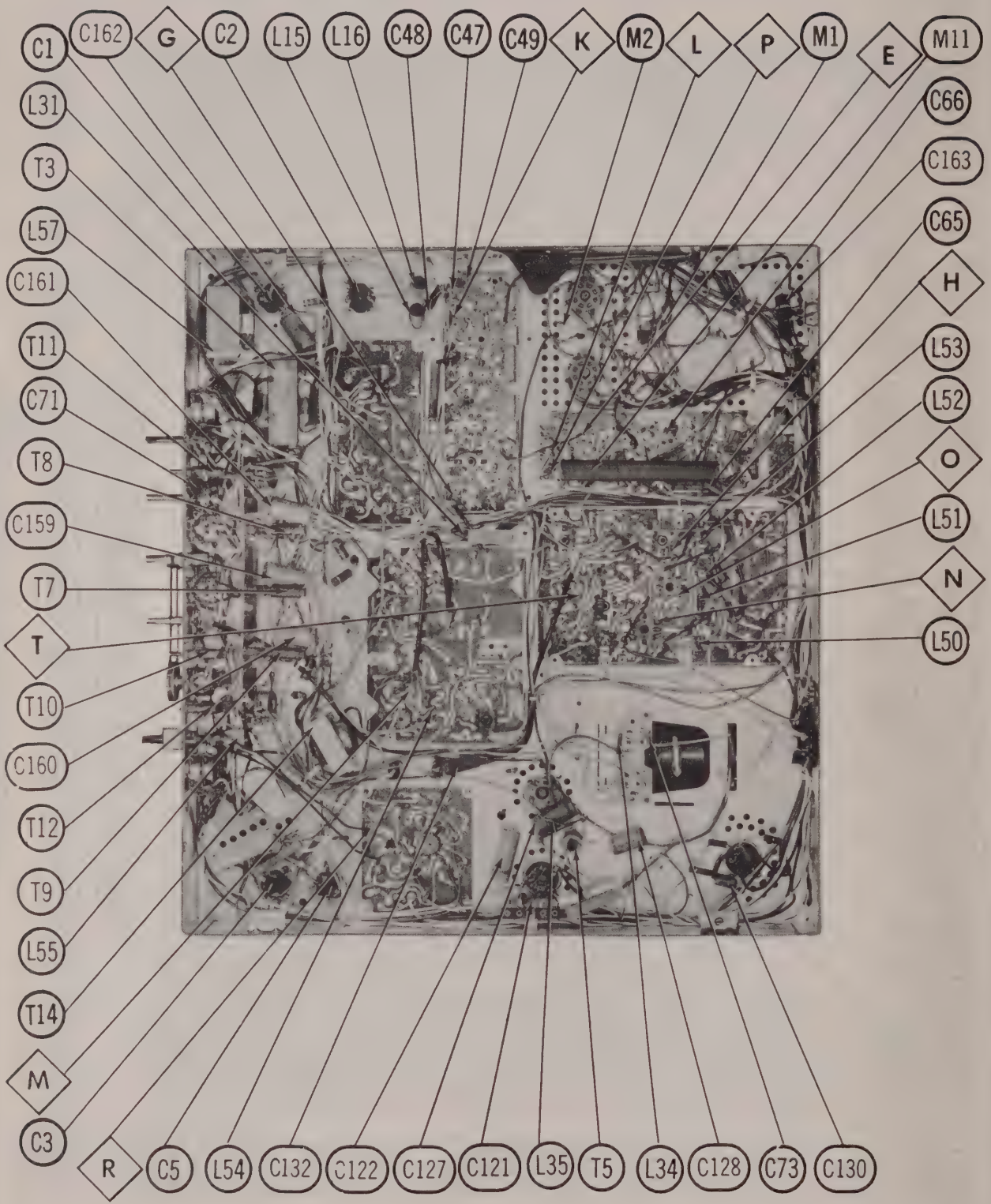
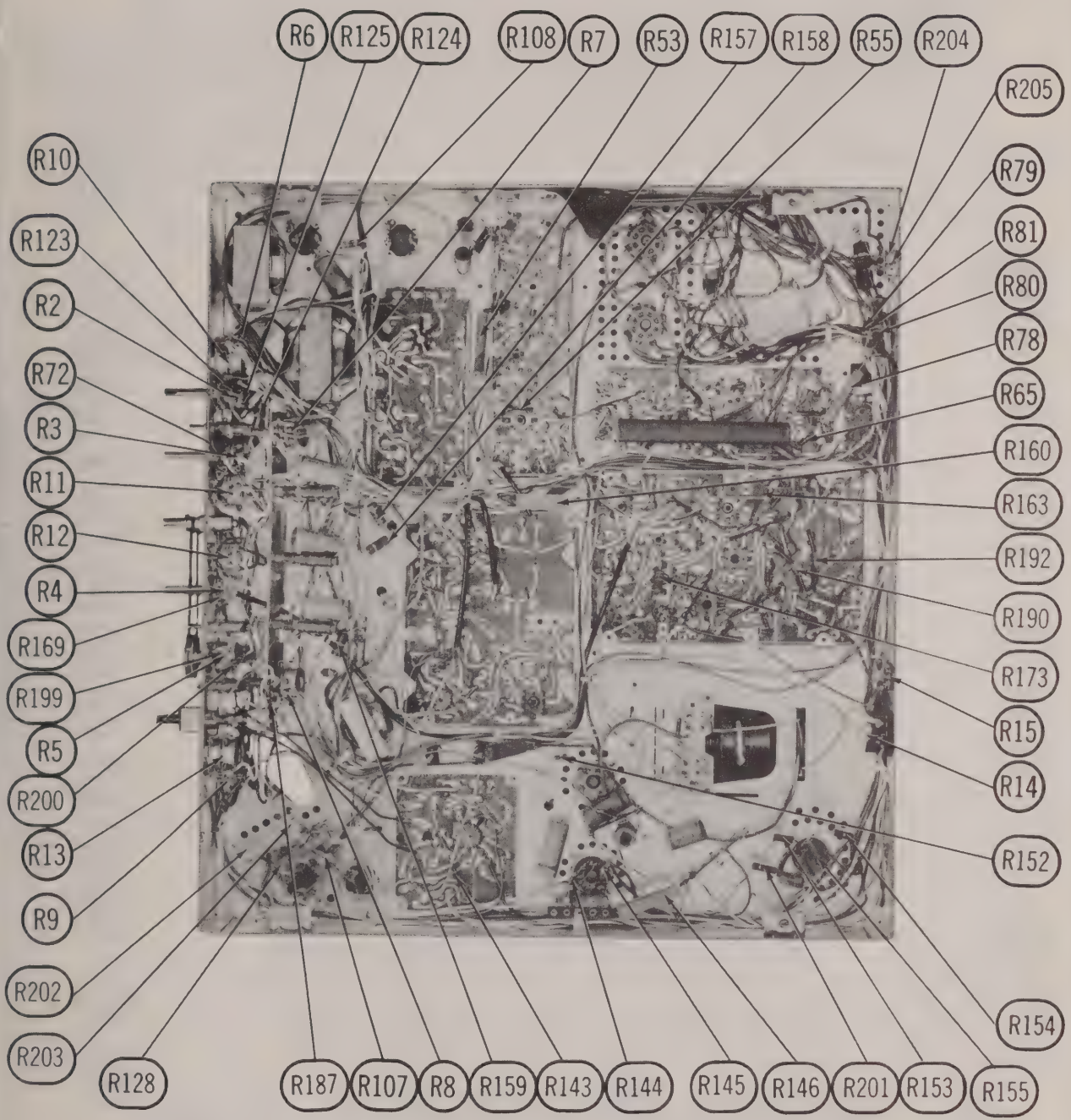
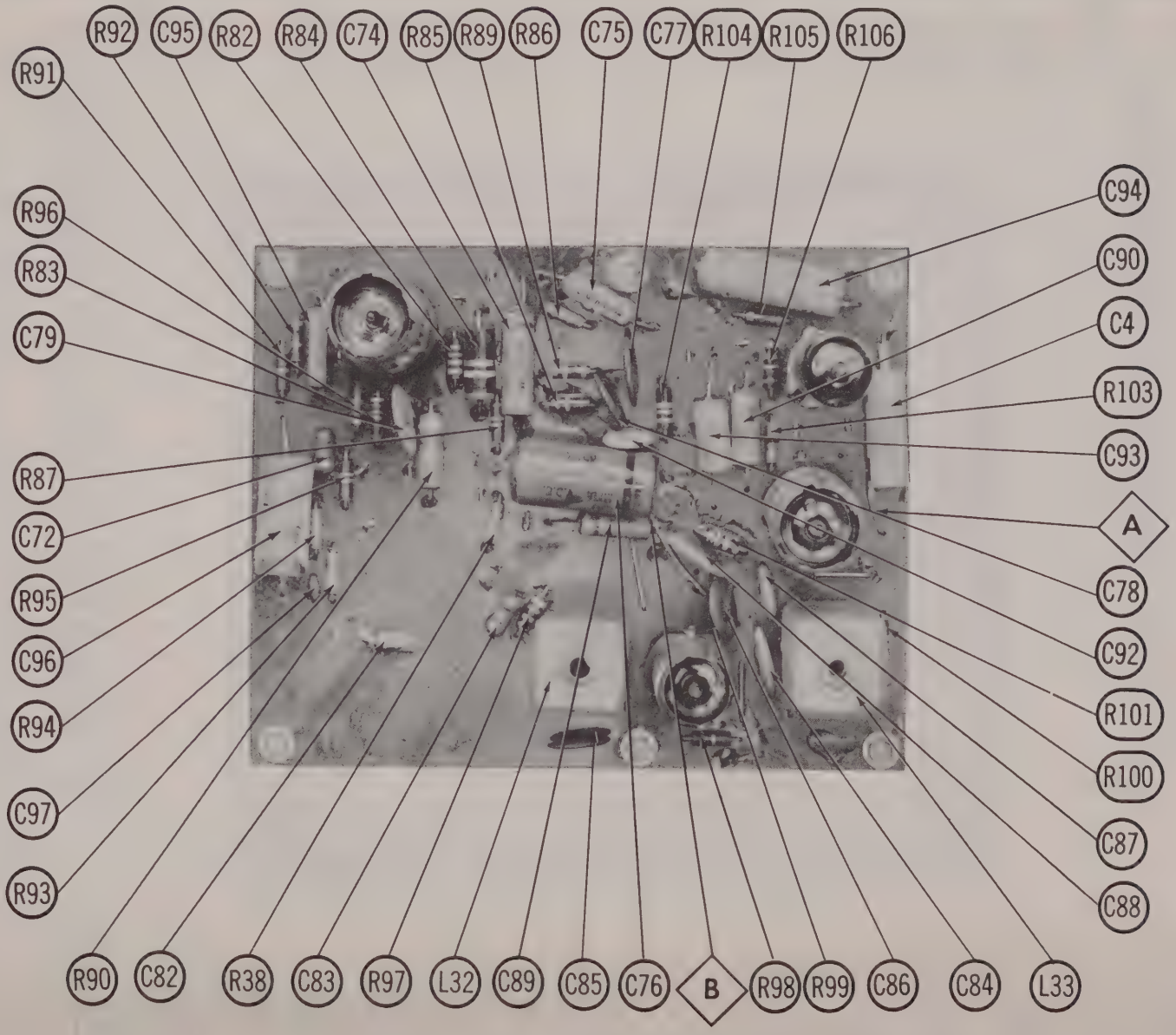


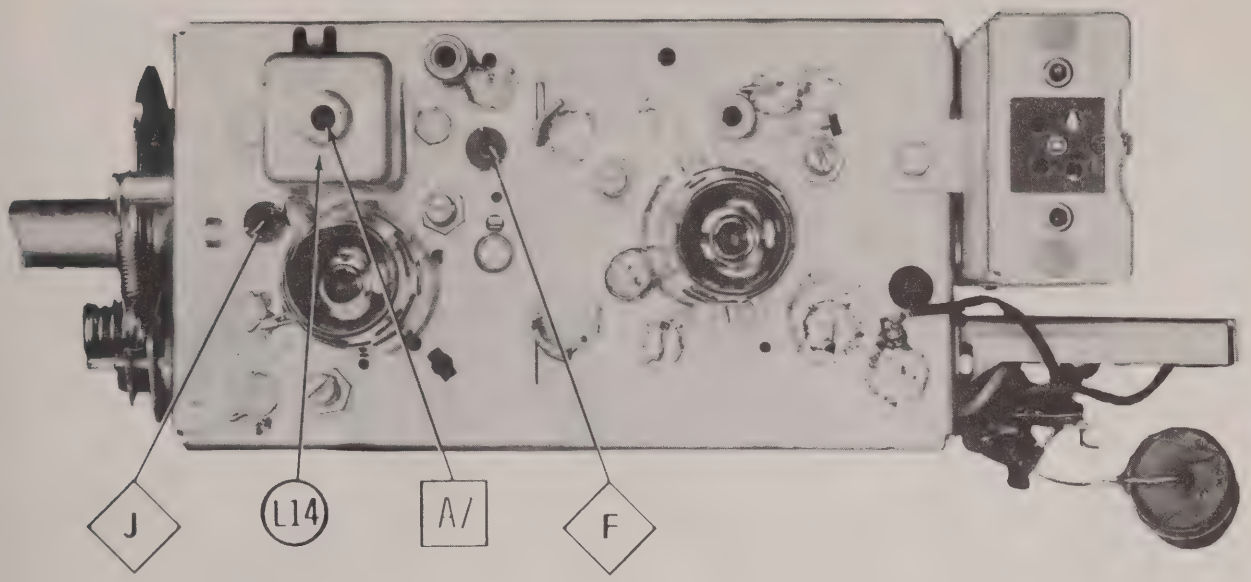
TRANS., INDUCTOR AND ALIGNMENT IDENTIFICATION



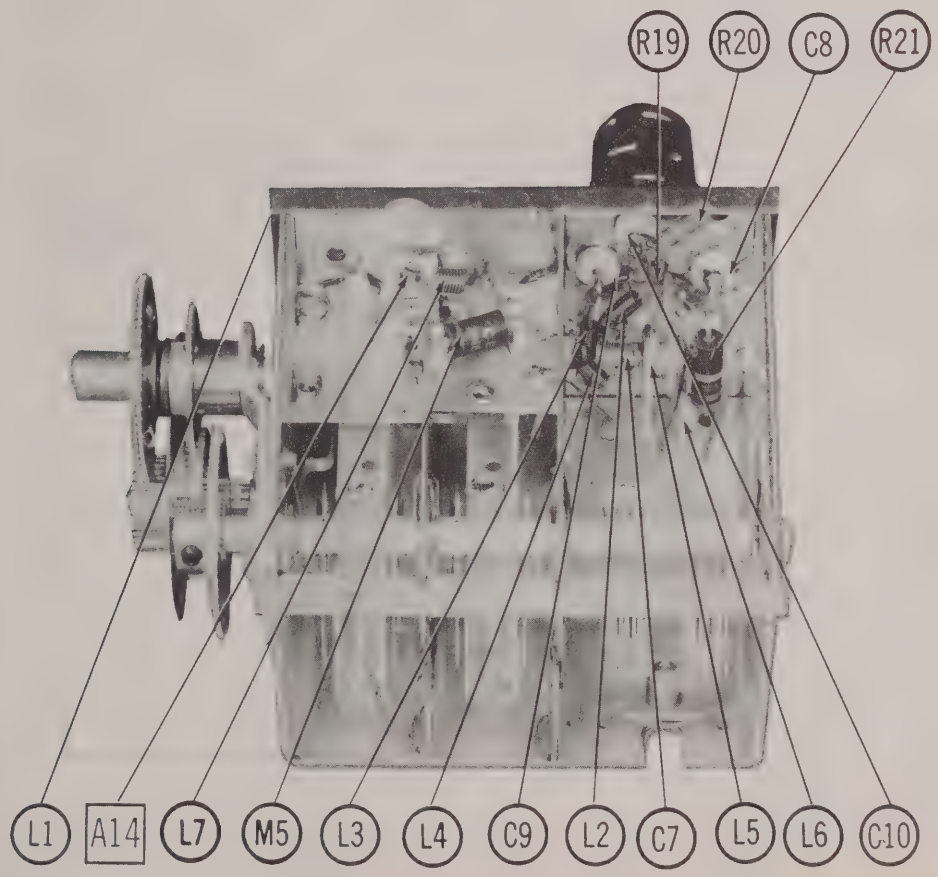
CHASSIS BOTTOM VIEW-RESISTOR IDENTIFICATION



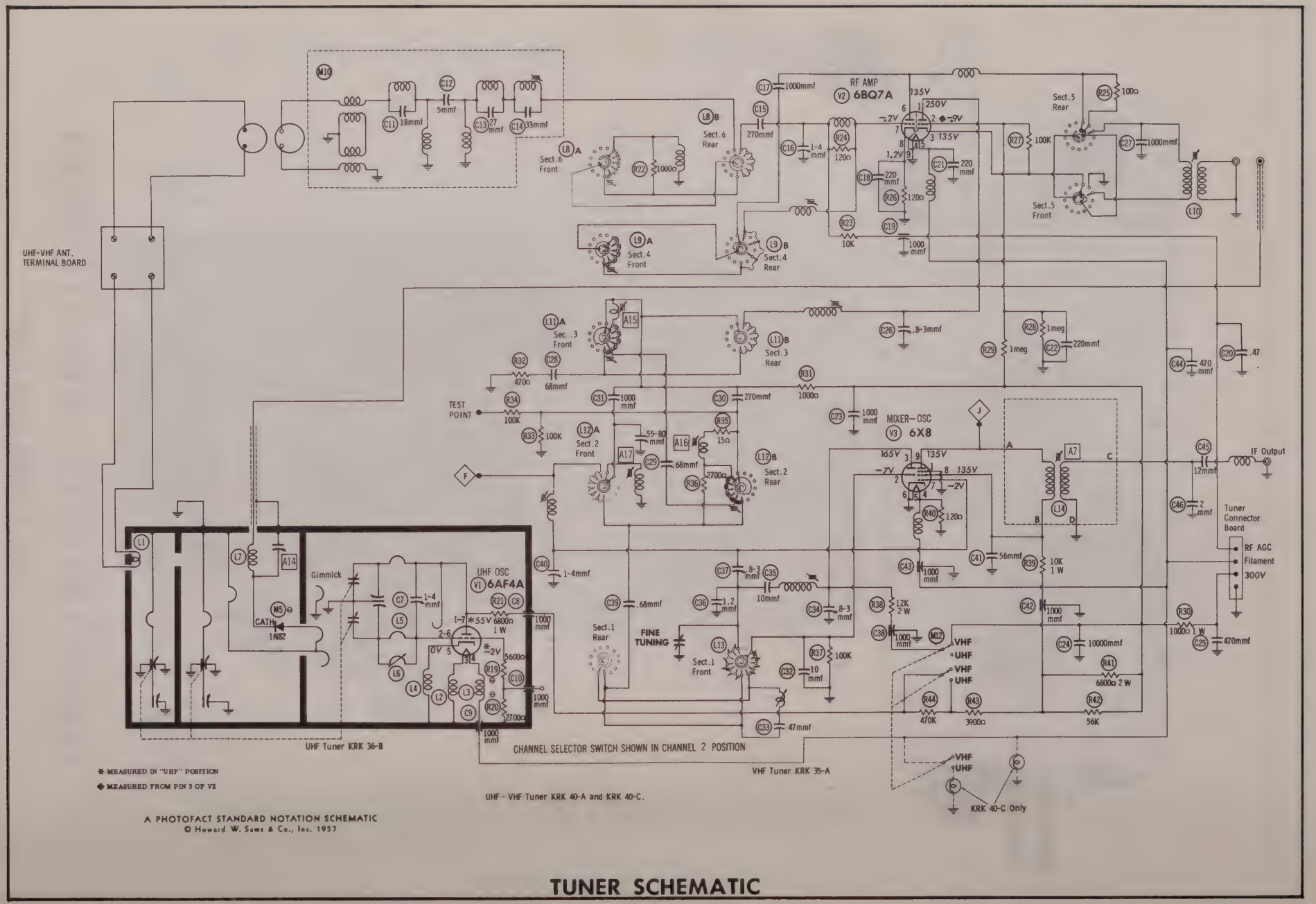
SOUND PRINTED BOARD



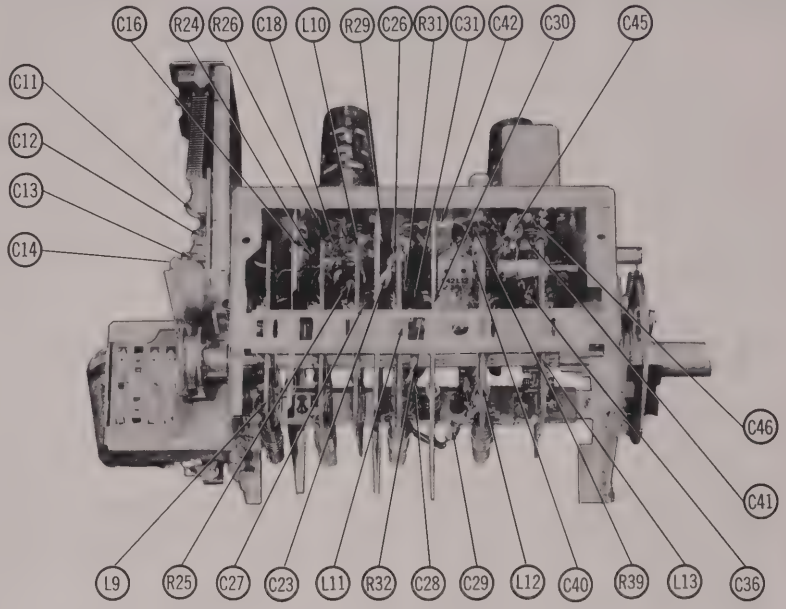
VHF TUNER-TOP VIEW



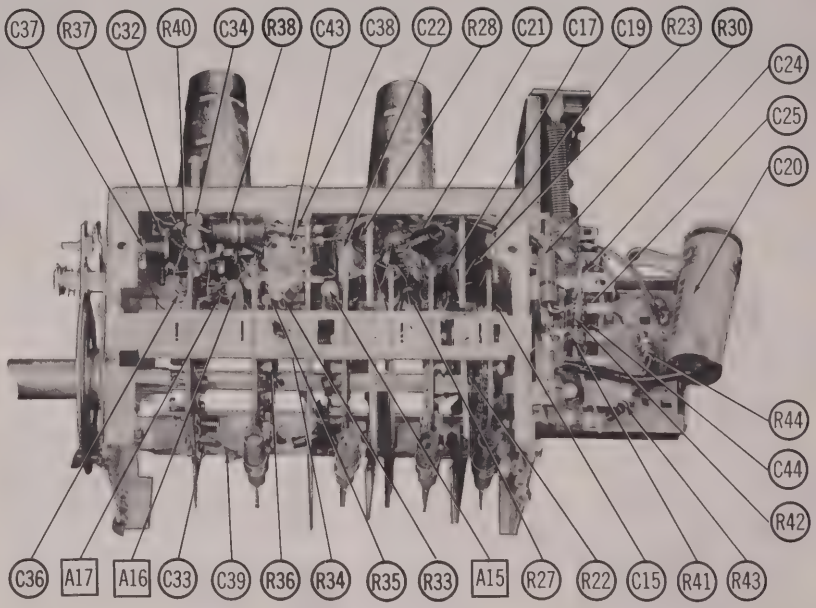
UHF TUNER SIDE VIEW



TUNER SCHEMATIC



VHF TUNER-LEFT SIDE



VHF TUNER-RIGHT SIDE

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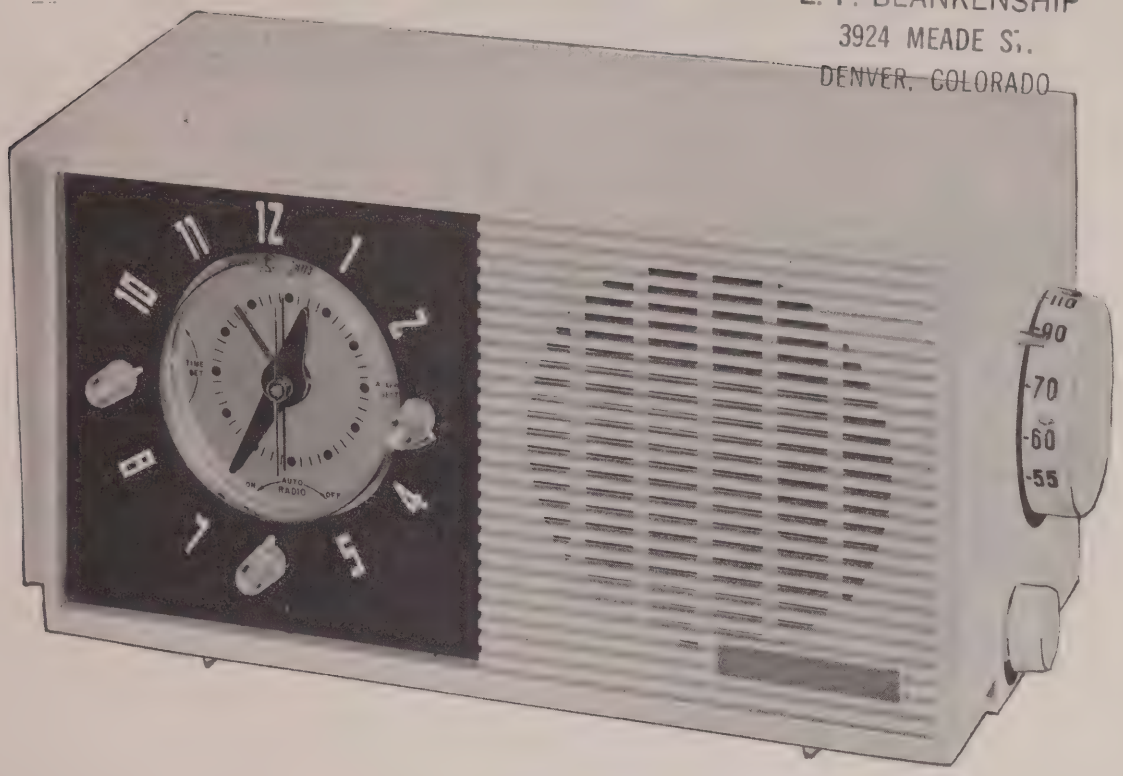
ROLAND
MODEL 4C2



ROLAND
MODEL 4C2

TRADE NAME	Roland Model 4C2
MANUFACTURER	Roland Radio Corp., 12-30 Anderson Ave., Mt. Vernon, N. Y.
TYPE SET	AC Operated AM Superheterodyne Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles RATING .25 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	540KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.01MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ mod.)	Tuning gang fully open.	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.	"	"	1620KC	"	"	A5	"
3.		Loop	1400KC	Tune to 1400KC signal.	"	A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.

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PARTS LIST AND DESCRIPTIONS

ROLAND
MODEL 4C2

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det.-AVC-AF Amplifier	12AT6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA ROLAND PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	20	150		PRS150V8040	BBRT84215	TCT3117	TDLT-7	FMT-339	TVA-3455
B	80	150		20					
C	40	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA ROLAND PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	.05	200		BPD-05	DF-503	CUB2S5		PT415	2TM-S5	
C3	10									
C4A	100		†	†PA-97-1	†PC-50	†111TM1	†1403-01	UC-531	†D-1	
B	100							UC-531		
C5A	220									
B	5000									
C	5000		♦	♦PA-113-2	♦PC-151	♦116TM2	♦1408-02		♦DT-2	
D	250									
E										
C6	.01	600		BPD-01	DD-103	CUB6S1	GP3-333-103	PT611	6TM-S1	
C7	.01	600		BPD-01	DD-103	CUB6S1	GP3-333-103	PT611	6TM-S1	
C8	.1	400		P488N-1	DF-104	CUB4P1		PT401	4TM-P1	

† Items C4A, C4B and R5 are combined in one unit.
♦ Items C5A, C5B, C5C, C5D, C5E, R7A , R7B and R7C are combined in one unit.
When replacing items separately C5D and C5E should total 250MMF.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA ROLAND PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1Meg	½	VC-64	AB-70	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			AK-4	KSS-3	Not Req.	Not Req.	

RESISTORS

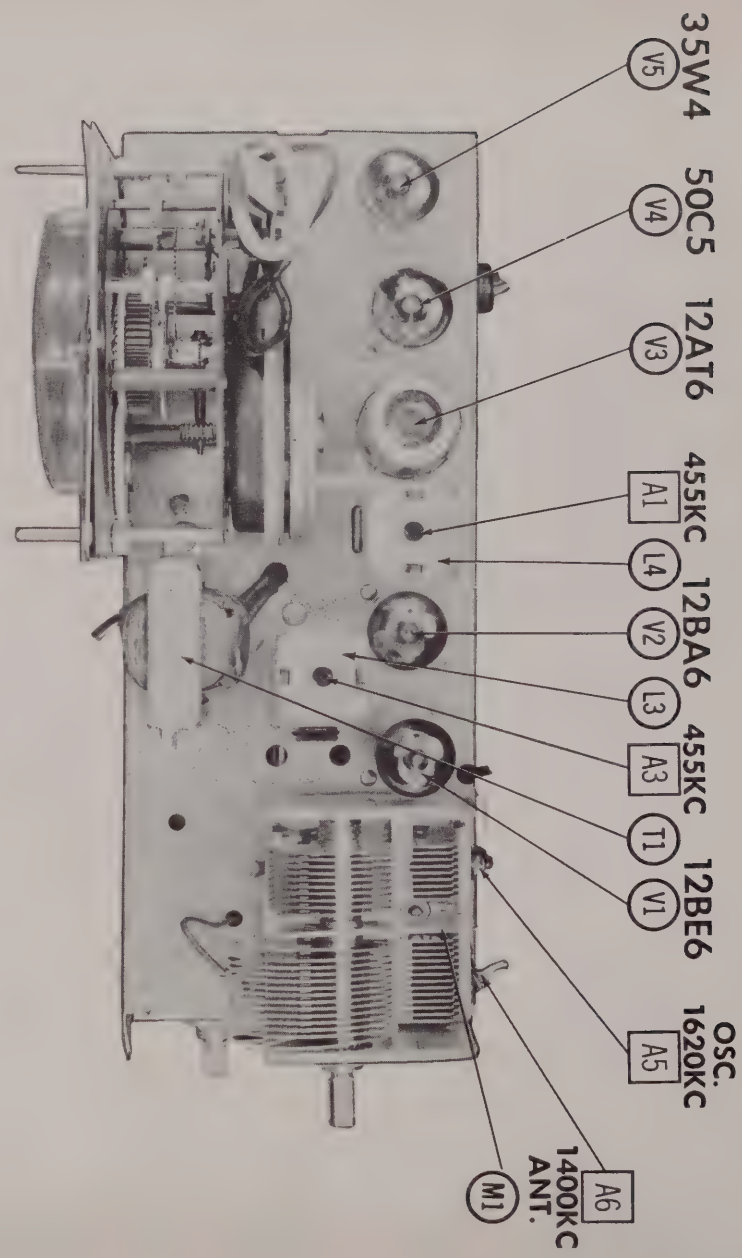
All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ROLAND PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R2	22K			BTS-22K	
R3	220K			BTS-220K	
R4	150Ω			BTS-150	
R5	47K		†	BTS-47K	
R6	2.2Meg			BTS-2.2Meg	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA ROLAND PART No.	REPLACEMENT DATA IRC PART No.	NOTES
R7A	6.8Meg		♦	BTS-6.8Meg	
B	470K			BTS-470K	
C	470K			BTS-470K	
R8	150Ω	1		BTA-150	
R9	2200Ω	1		BTA-2200	
R10	330Ω	1		BTA-330	

† Items R5, C4A, C4B are combined in one unit.
♦ Items R7A, R7B, R7C, C5A, C5B, C5C, C5D, C5E are combined in one unit.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ROLAND PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2850Ω	3-4Ω	TR-120	Z1101	A-3025	A-3332	26S58	S-16X	

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	ROLAND PART No.	QUAM PART No.		
SP1	4"	PM	3-4Ω	SP-102-1	4A07		

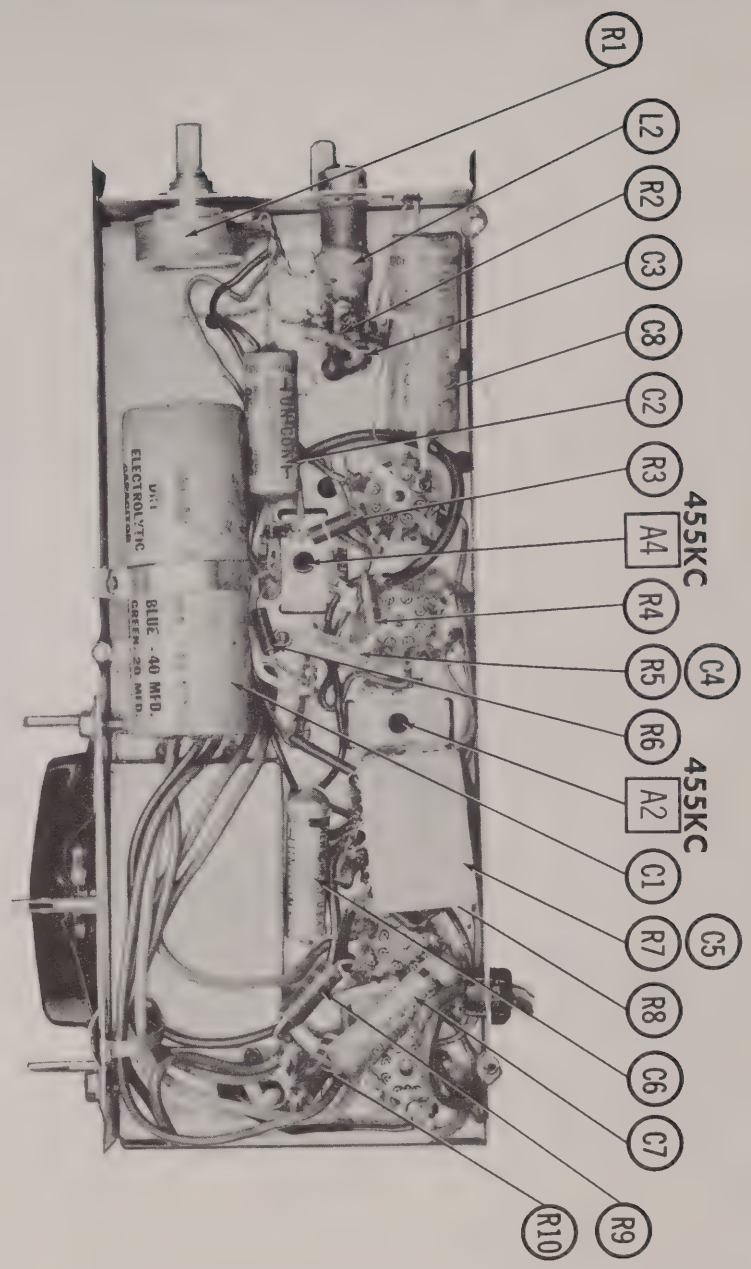
COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	ROLAND PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	2.7Ω						
L2	Osc. Coil	.5Ω	5.5Ω				69-OSC *	* Drill new mounting hole
L3	Input IF	23Ω	23Ω	LF-50	16-6758	BC-352	12-C1	
L4	Output IF	23Ω	23Ω	LF-50	16-6758	BC-353	12-C2	

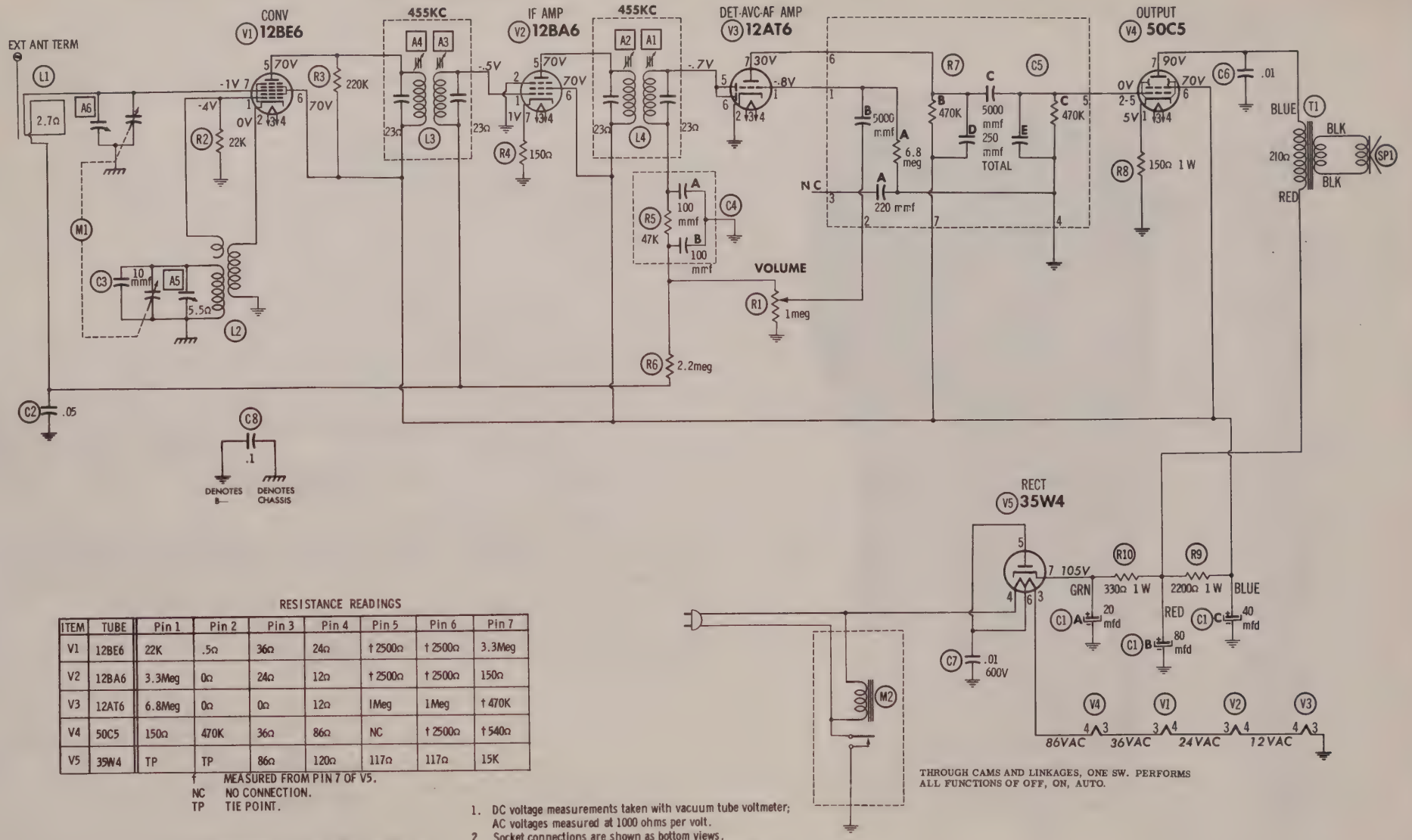
MISCELLANEOUS

ITEM No.	PART NAME	ROLAND PART No.	NOTES
M1	Tuning Cap.	CV-67	2 Gang (31-470MMF, 17-185MMF)
M2	Clock		

CHASSIS—BOTTOM VIEW



ROLAND MODEL 4C2



THROUGH CAMS AND LINKAGES, ONE SW. PERFORMS ALL FUNCTIONS OF OFF, ON, AUTO.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.5Ω	36Ω	24Ω	†2500Ω	†2500Ω	3.3Meg
V2	12BA6	3.3Meg	0Ω	24Ω	12Ω	†2500Ω	†2500Ω	150Ω
V3	12AT6	6.8Meg	0Ω	0Ω	12Ω	1Meg	1Meg	†470K
V4	50C5	150Ω	470K	36Ω	86Ω	NC	†2500Ω	†540Ω
V5	35W4	TP	TP	86Ω	120Ω	117Ω	117Ω	15K

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.
TP TIE POINT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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SONORA MODEL 605

TRADE NAME	Sonora Models 565, 576, 605, 613
MANUFACTURER	Sonora Radio & Tel. Corp., 325 North Hoyne Avenue, Chicago, Illinois
TYPE SET	Television Receiver
TUBES	Twelve
POWER SUPPLY	110-120 Volts AC, 60 cycle — RATING 140 Watts, 1.35 Amp @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, Video IF 45.75 MC, Sound IF 41.25 MC (Intercarrier)

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SONORA MODELS
565, 576, 605, 613

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DISASSEMBLY INSTRUCTIONS

CHASSIS REMOVAL

1. Remove 4 push on type control knobs.
2. Remove 2 metal screws holding antenna terminal board.
3. Remove 10 metal screws, remove rear cover.
4. Remove 2 speaker wires.
5. Remove 4 metal screws, 2 on each side, remove top of cabinet.
6. Remove picture tube socket, ion trap, HV lead, 4 centering device springs, and centering device.
7. Remove 2 metal screws holding AC interlock assembly.
8. Remove 2 chassis bolts from bottom of cabinet.
9. Remove 2 chassis bolts from side of cabinet.
10. Holding front of picture tube, remove chassis and yoke.
11. Remove the picture tube.
12. Remove 2 bolts holding the speaker and remove speaker.

CAUTION NOTE

ONE SIDE OF AC LINE CONNECTED TO CHASSIS

Care should be exercised when connecting test equipment or physically contacting chassis.

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Model 605

SERVICING IN THE FIELD

TUNER OSCILLATOR ADJUSTMENTS

Touch-up adjustments of the VHF Tuner Oscillator circuit may be accomplished by removing the Channel Selector and Fine Tuning knobs. The high channels may be adjusted by the adjustment screw located near the top of the tuner, and the low channels by the adjustment screw near the bottom of the tuner.

PICTURE TUBE SAFETY GLASS CLEANING

For picture tube safety glass cleaning it is necessary to remove the chassis. (See disassembly instructions)

FOCUS ADJUSTMENT

Adjust the ion trap for best focus consistent with maximum brightness.

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Turn set on and tune in a TV station and adjust the horizontal hold until the picture synchronizes horizontally.

FUSES

A 5Ω fusible resistor (R71) is used for low voltage supply protection.

CENTERING

Centering is accomplished mechanically by adjusting two magnetic rings around the neck of the picture tube. Rotate the two rings around the neck of the tube until the picture is properly centered.

SONORA MODELS
565, 576, 605, 613

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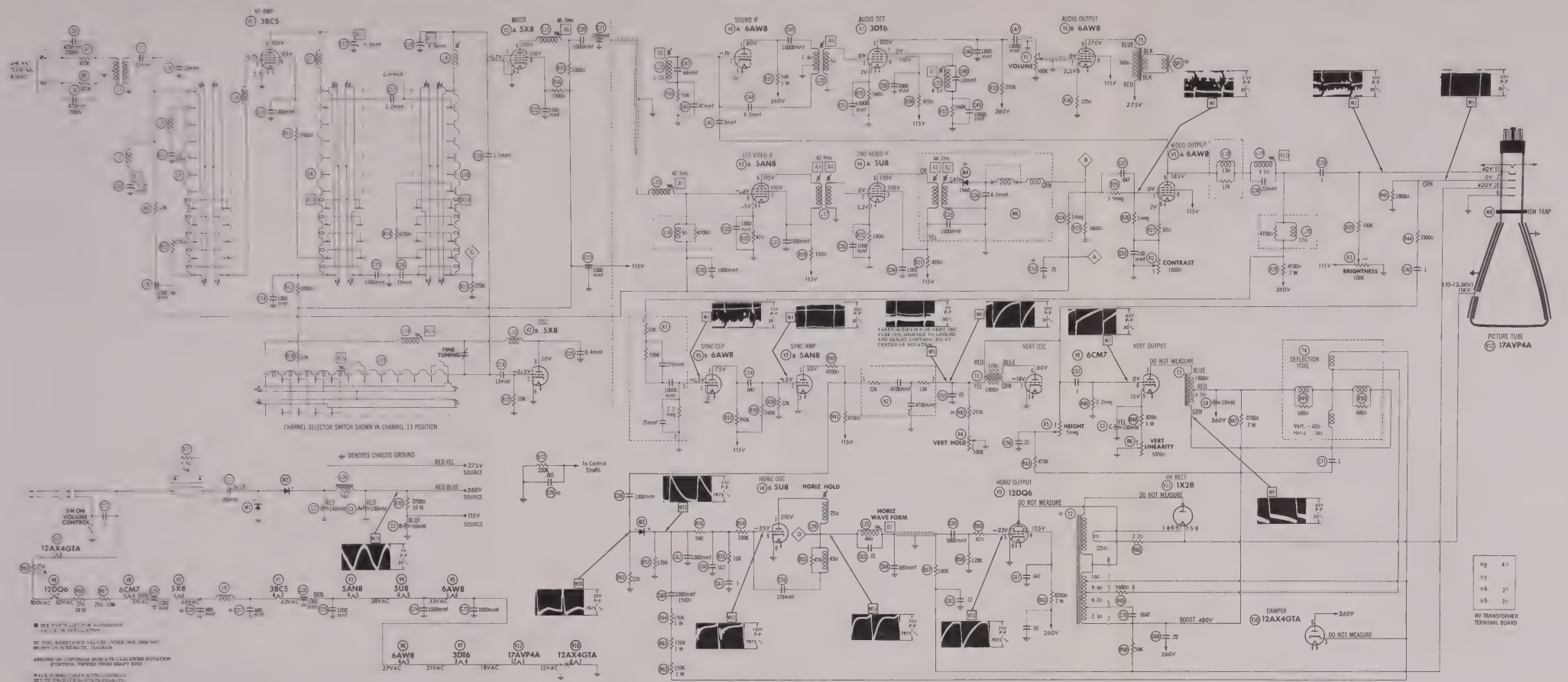

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CHASSIS TOP VIEW

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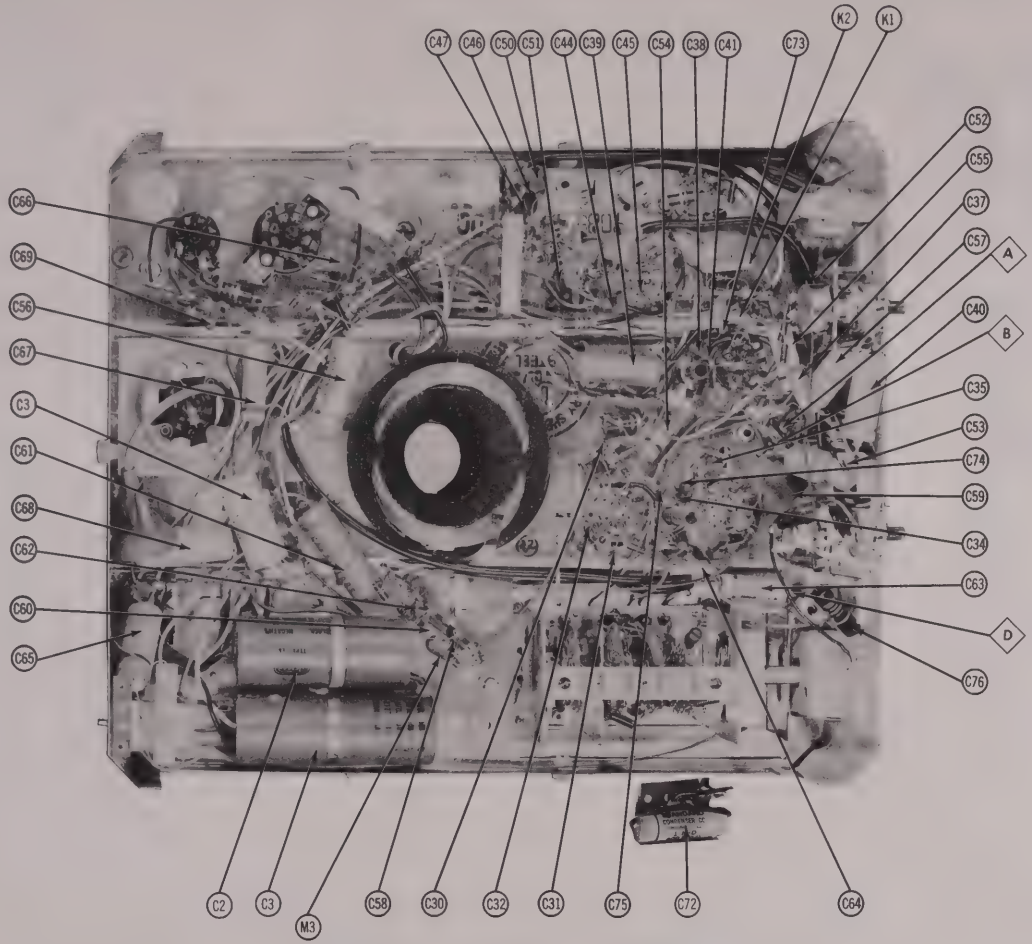
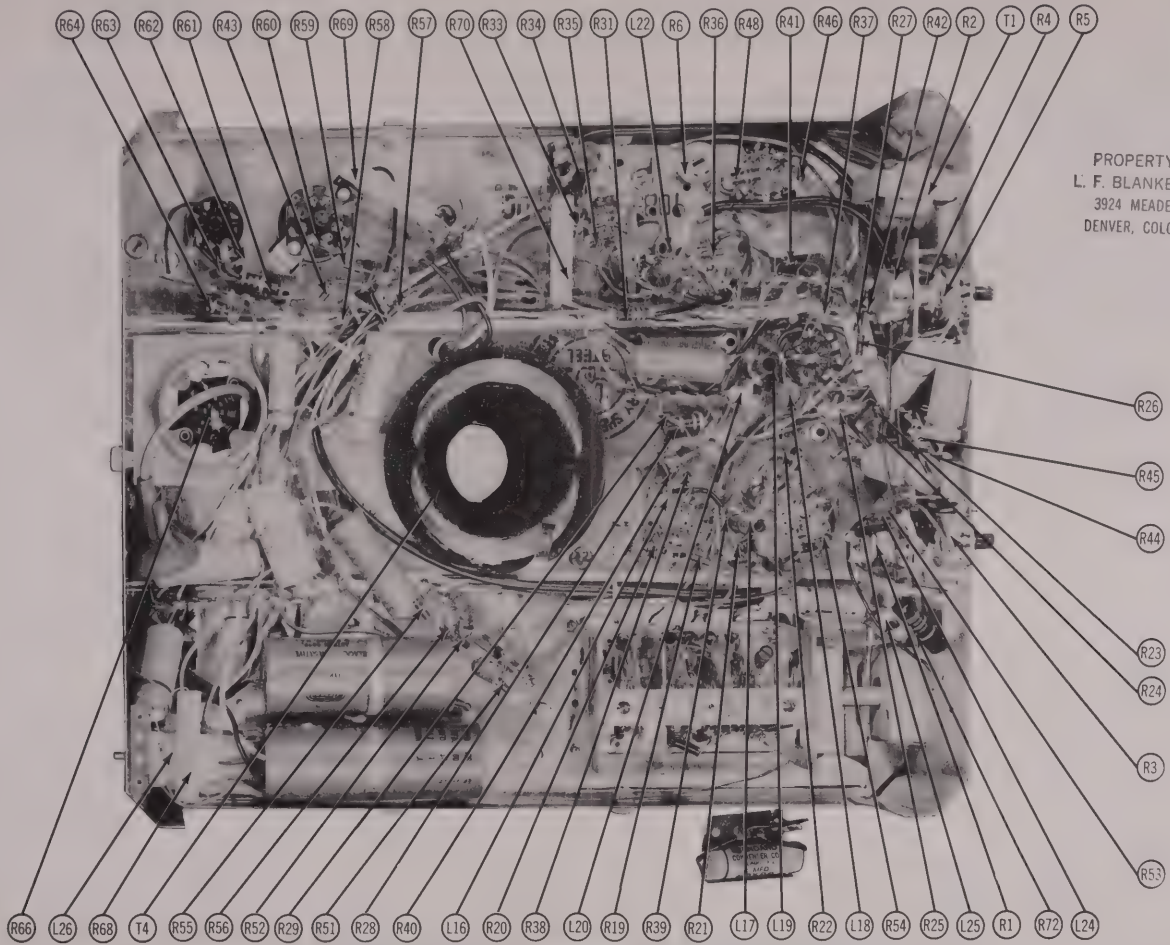


CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use an isolation transformer to protect the test equipment.

VIDEO IF ALIGNMENT

Connect the negative lead of a 3 volt bias battery to point (A). Positive to chassis.
Take a small strip of metal, insulate with tape and slip between the converter tube and shield. Leave the top end of the metal strip uninsulated for connecting the generator.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Direct	High side to insulated tab. (See instructions.) Low side to chassis.	Not used.	44.2MC (unmod)	Any non-interfering channel.	USE VTVM DC probe to point (B). Common to chassis.	A1, A2	Use only enough sweep generator output to provide usable indication on VTVM. Adjust for maximum deflection. Tune for peaks with slugs farthest apart.
2.	"	"	"	42.9MC	"	"	A3, A4	"
3.	"	"	"	42.5MC	"	"	A5	Use only enough sweep generator output to provide usable indication on VTVM. Adjust for maximum deflection.
4.	"	"	"	45.0MC	"	"	A6	"
5.	"	"	43.5MC (10MC Swp)	41.25MC 42.6MC 45.75MC	"	Vert. amp. thru 10K to point (B). Low side to chassis.		Use only enough sweep generator output to provide usable pattern on scope. Check for response similar to Fig. 1. If necessary, SLIGHTLY retouch A1 thru A6 to position markers as indicated in Fig. 1.

SOUND IF ALIGNMENT USING SWEEP GENERATOR AND OSCILLOSCOPE

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
6.	C37	Disconnect C37 at point (B). Connect high side of sweep generator to loose end of C37. Low side to chassis.	4.5MC (450KC Swp)	4.5MC	Any unused channel.	Across volume control.	A7, A8, A9	Preset A7 counter clockwise until it no longer effects response. Use only enough sweep generator output to provide usable pattern on scope. Adjust A8 and A9 for maximum response and symmetry similar to Fig. 2.
7.	"	"	"	"	"	"	A7	Adjust A7 for response as shown in Fig. 3. Reconnect C37.

SOUND IF ALIGNMENT USING ON THE AIR SIGNAL

Tune in a strong TV station and adjust A7 for maximum sound output.
Tune in a weak signal, or use an attenuator to reduce the signal strength below the limiting level of the 3DT6 as indicated by a hiss in the sound. Adjust A8 and A9 for maximum sound output.
Switch back to a strong signal and again adjust A7 for maximum sound output.

4.5MC TRAP ALIGNMENT

Tune in a TV station and adjust fine tuning until sound bars appear in the picture. Turn A10 fully counter clockwise then clockwise until horizontal scanning lines are smooth and continuous.

RF AND MIXER ALIGNMENT

Disconnect the AGC lead (white wire) from the tuner terminal and connect the negative lead of a 1.5 volt battery to the AGC terminal of the tuner. Connect the positive lead to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide usable pattern on scope.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
8.	Direct	Across antenna terminals.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp. thru 10K to point (C). Low side to chassis.	A11, A12	Adjust for curve similar to Fig. 4 with markers as indicated. Detune A6 SLIGHTLY if dip in response is too great.
9.	"	"	177MC (10MC Swp)	175.25MC 179.75MC	7	"		Check for response similar to Fig. 4. If necessary, SLIGHTLY retouch A11 and A12 for best compromise.
10.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A13, A14	Check for response similar to Fig. 4. If necessary, adjust A13 and A14 by expanding or compressing coil turns to obtain desired response curve.
11.	"	"	57MC (10MC Swp)	55.25MC 59.75MC	2	"		Check for response similar to Fig. 4. If necessary, retouch SLIGHTLY A13 and A14 for best compromise. Readjust A6 if detuned in step 8.

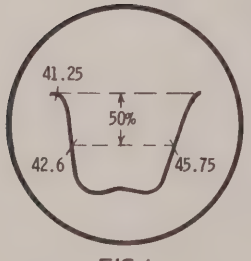


FIG. 1

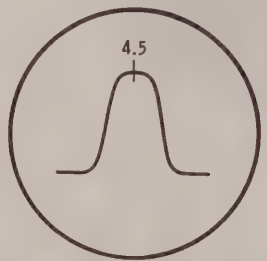


FIG. 2

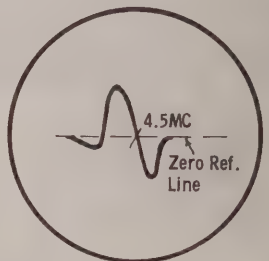


FIG. 3

ALIGNMENT INSTRUCTIONS (cont)

OSCILLATOR ALIGNMENT

Connect bias as under "RF and Mixer Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Set the fine tuning so that the flat of the shaft is toward the top of the tuner (tube side).

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	Direct	Across antenna terminals.	213MC (10MC Swp)	211.25MC 215.75MC	13	Vert. amp thru 10K to point (B). Low side to chassis.	A15	Adjust for response curve similar to Fig. 5 with markers as indicated.
13.	"	"	85MC (10MC Swp)	83.25MC 87.75MC	6	"	A16	Adjust for response curve similar to Fig. 5 with markers as indicated. Disconnect bias battery and reconnect AGC lead to tuner.

IF INTERFERENCE TRAP ALIGNMENT

Check all operating channels for IF (41.25MC) interference. If present, adjust A17 for MINIMUM interference.

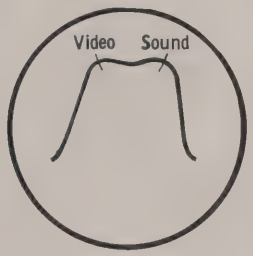


FIG.4

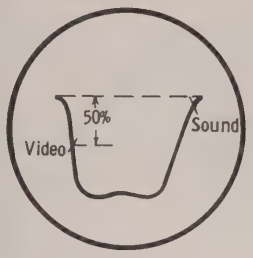
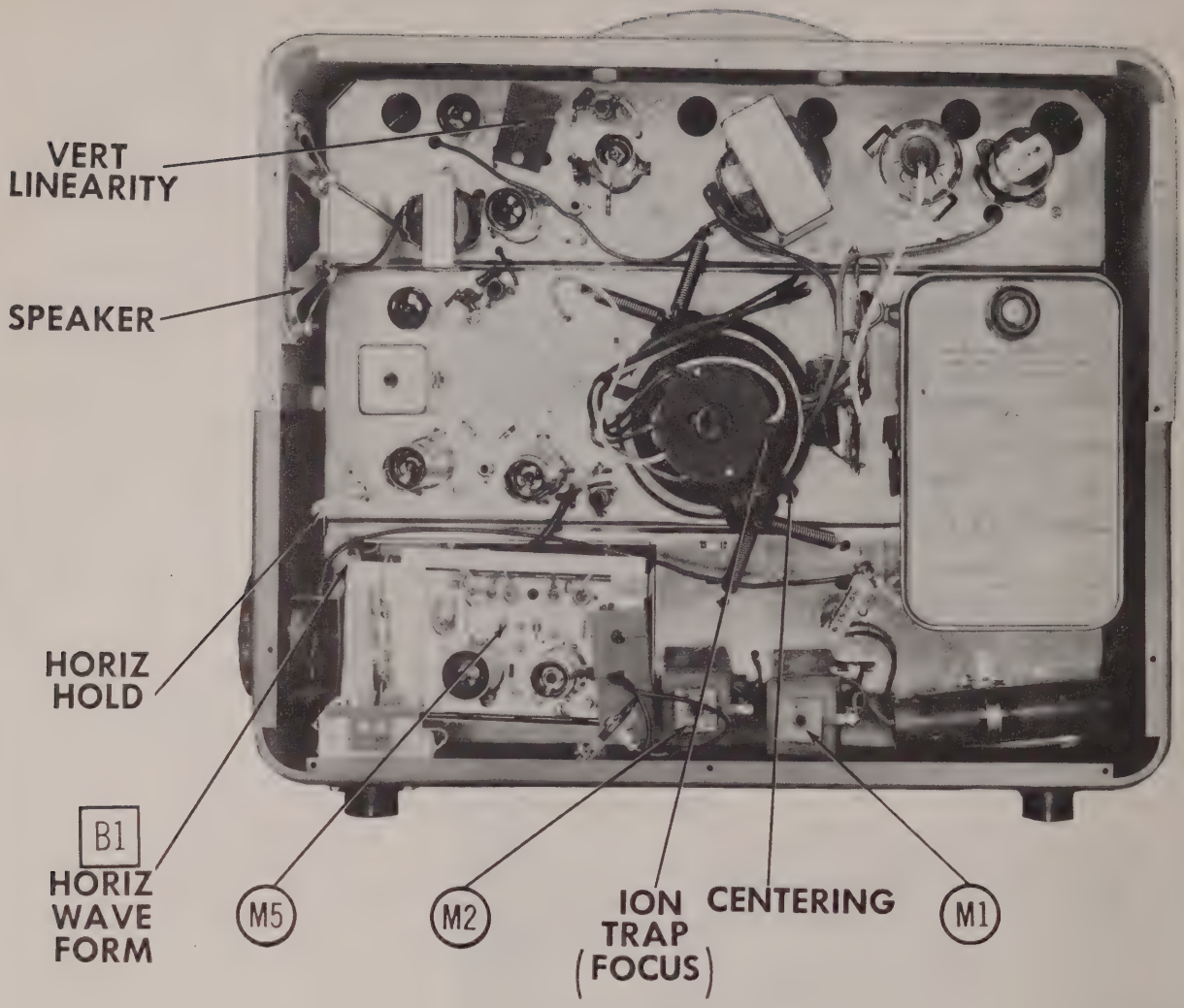


FIG.5



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Turn the set on and tune in a TV station and adjust the horizontal hold until the picture synchronizes horizontally.

Connect the vertical amplifier of an oscilloscope through a .01 mfd. capacitor to point (D) . Low side to chassis. Adjust the horizontal waveform slug (B1) until the round peak is 10% lower in amplitude than the sharp peak as in figure 6.

Tune in a weak station and adjust the horizontal hold control to the center of the range in which the picture remains in sync when the set is switched off-channel and back again.

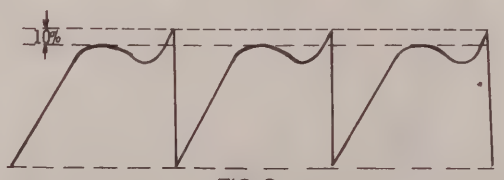
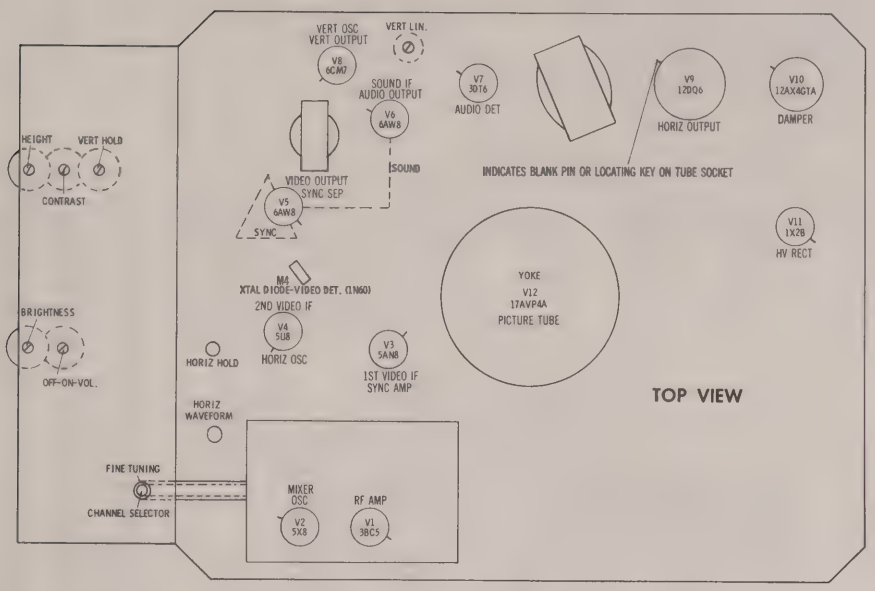


FIG. 6

TUBE PLACEMENT CHART

PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce the indicated symptoms. Refer to tube placement chart for location and type of tube.

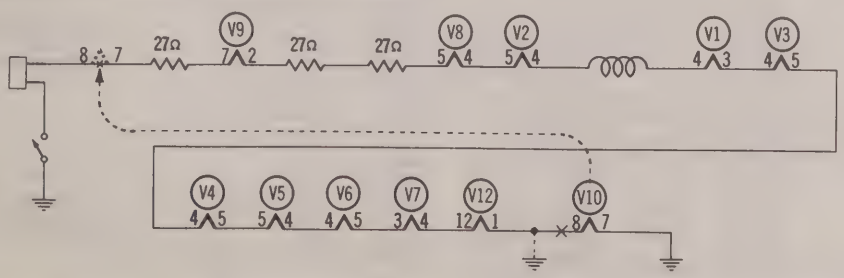
POWER SUPPLY FAILURE
No raster, no sound - **Fusible Resistor (R71), Rectifier (M1, M2)**

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster - **V3, V4, Diode (M4), V5**
No pic, no sound, has snow - **V1, V2**
No pic, has sound, has raster - **V5, V12**
Has pic, no sound - **V6, V7**

SYNC FAILURE
No vert. sync - **V5, V3, V8**
No horiz. sync - **V5, V3, Diode (M3), V4**
No vert. or horiz. sync - **V5, V3**

SWEEP FAILURE
No raster, has sound - **V4, V9, V10, V11, V12**
No vertical deflection - **V8**
Poor vert. linearity or foldover - **V8**
Poor horiz. linearity or foldover - **V4, V9, V10**
Narrow picture - **V4, V9, V10, M1, M2**
Vert. off freq. - **V5, V3, V8**
Horiz. off freq. - **V5, V3, M3, V4**

Since this receiver employs tubes used in a series filament network, an open filament in any of the series will cause the set to be inoperative. (See circuit diagram below).



PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No	USE	TYPE	NOTES
V1	RF Amp.	3BC5	
V2	Mixer-Osc.	5X8	
V3	1st Video IF Amp. Sync Amp.	5AN8	
V4	2nd Video IF Amp. - Horiz. Osc.	5U8	
V5	Video Output-Sync Sep.	6AW8	
V6	Sound IF Amp. - Audio Output	6AW8	
V7	Audio Det.	12T8	
V8	Vert. Osc. -Vert. Output	21CM7	
V9	Horiz. Output	21D8	
V10	Damper	12AX4-A	
V11	HV Rectifier	1X2B	

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: SONORA PART No.	RS PART No.	GENERAL ELECTRIC PART No.	SYLVANIA PART No.	NOTES
V12	17AVP4A	17AVP4A ↓	17AVP4A ↓ 17AVP4	17AVP4A ② 17AVP4 17ATP4A ② 17ATP4	① Aluminized ② Silver Screen .85

ELECTROLYTIC CAPACITORS

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: SONORA PART No.	AEROVOX PART No.	CORNELL DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	200	50	R-2128	PRI-075	SRI20015	W3342	TD-200-150	S-310	TVA-1423
C2	140	300	R-2123	PRI-100	A-2140-0	W5427	TD-150-300	S-220	TVA-1575
C3A	40	300	R-2127	PRI-247	CD6044	WT430		MT-0550	R234Q*
B	60	300			CD6045				
C	100	50							
C4	10	350	R-2123	PRS350V10	HRI235	TC62	TD-12-350	FM-3512	TVA-1604

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No	RATING: CAP	VOLT	REPLACEMENT DATA: SONORA PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C5	470	2000	690077	HVD-30 470	HVD20-471	HVB20147		DC30347	30GA-T47	
C6	470	2000	690077	HVD-30 470	HVD30-471	HVB30147		DC30347	30GA-T47	
C7	22		690083	BPD-000022	DE-220	L10Q22	ED-33	UC-5433	5GA-Q33	
C8	1000		690040	EF-001	MFT-1000				5GC-D1	
C9	12			BPD-000012	DD-120	L10Q12	ED-15	UC-5415	5GA-Q15	
C10	5-20		690226							
C11	10			BPD-00001	DE-100	L10Q1	ED-10	UC-541	5GA-Q8	
C12	5-3		690227		839-3			5U15-D		
C13	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C14	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C15	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C16	33		690080	BPD-000033	DD-330	L10Q33	ED-33	UC-5433	5GA-Q33	
C17	1.2		690034	NPO-S11	TCZ-1		TCO-1	ST-5516	STCCB-V1	
C18	5-.5		690037		539-2		511S-D	ST-5516A		
C19	1.5		690031	NPO-S1.5	TCZ-1R5	C10V15C	TCO-1.5	ST-5515	STCCB-V15	
C20	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C21	100		690025							5%
C22	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1 503C-D1	
C23	1000		690040	EF-001	MFT-1000					N1500
C24	15		690091							M1500
C25	.4		690010							
C26	1000		690040	EF-001	MFT-1000				503C-D1	
C27	680			BPD-00068	DD-681	L10T68	ED-680	UC-5368	5GA-T68	Note 1
C28	680			BPD-00068	DD-681	L10T68	ED-680	UC-5368	5GA-T68	Note 1
C29	1000		690040	EF-001	MFT-1000				503C-D1	
C30	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C31	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C32	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C33	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C34	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C35	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C36	4.7			NPO-S1 4.7	TCZ-4.7	C10V47C	TCO-4.7	ST-5547	STCCB-V47	
C37	.047	300	R-1483	BPD-05	DF-503	CUB5E47		GEM-3147	2TM-S47	
C38	33		N-9649	BPD-33		L10Q33	ED-33	UC-5433	5GA-Q33	
C39	.1	400		P488H-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C40	.1	600		P688H-1	DF-104	CUB6P1		GEM-601	6TM-P1	
C41	5			NPO-S5		C10V5C	TCO-5	ST-553		
C42	68			NPO-S1 68	TCZ-68	C10Q68C	TCO-68		STCC-Q68	
C43	47			NPO-S1 47	TCZ-47	C10Q47C	TCO-47		STCC-Q47	
C44	5.2		R-1641	NPO-S1 5.2		C10V52C	TCO-5.2			
C45	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC531	5HK-S1	
C46	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C47	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC531	5HK-S1	
C48	18		R-1177		TCZ-18	C10Q18C	TCO-18			
C49	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC531	5HK-S1	
C50	5000			BPD-005	DD-503	BYA10D5	GP-5000	DC525	5HK-D5	
C51	10000			BPD-01	DD-103	BYA6S1	GP-10000	DC531	5HK-S1	
C52	100			BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C53	.35	300		P488H-35		CUB2P35		GEM-3235	2TM-P35	Note 2
C54	.047	500	R-1483	BPD-05	DF-503	CUB5S47		GEM-3147	2TM-S47	
C55	.01	600		BPD-01	DF-103	CUB6S1		GEM-611	6TM-S1	
C56	.33	600	R-1496	P488N-33		CUB4P33		GEM-4022	4TM-P22	
C57	.1	400		P488H-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C58	1000			BPD-01	DD-103	BYA6S1	ED-1000	DC531	5HK-S1	
C59	270			1488-00027		5W5T27			MS-327	
C60	.033	400	R-1481	BPD-03	DF-303	CUB4S33		GEM-4132	4TM-S32	
C61	.5	300		P288H-5		CUB2P5		GEM-205	2TM-P5	
C62	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC521	5HK-D1	
C63	.01	600		BPD-01	DD-103	CUB6S1		GEM-611	6TM-S1	
C64	680			BPD-00068		BYA10T68	ED-680	UC-5368	5GA-T68	
C65	.33	600	R-2188	P688H-33		CUB6P33		GEM-4033	6TM-P33	
C66	5000			BPD-005	DD-503	BYA10D5	GP-5000	DC525	5HK-D5	
C67	.047	400	R-1483	BPD-05	DF-503	CUB4S47		GEM-4147	4TM-S47	
C68	.33	600	R-2186	P688H-33		CUB6P33		GEM-4033	6TM-P33	
C69	1000	1500	R-1449	P1838N-001	DD50-102	CUB3D1	HD15-1000	DC302	303RD-D1	
C70	.0047	400	R-1414	BPD-0047	DD-472	CUB4D47		GEM-4247	4TM-D47	
C71	.1	200		P588H-1	DF-104	CUB2P1		GEM-201	2TM-P1	
C72	.1	400		P488H-1	DF-104	CUB4P1		GEM-401	4TM-P1	
C73	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C74	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C75	1000			BPD-001	DD-102	BYA6D1	ED-1000	DC531	5HK-D1	
C76	.001	600		BPD-0001	DD-101	CUB6D1		GEM-621	6TM-D1	

Note 1: Some versions use a 1000MMFD ceramic disc capacitor in this application.
Note 2: Some versions may use a .33MFD ± 20% 500V capacitor in this application. (Part #R-2188)

PARTS LIST AND DESCRIPTIONS

CONTROLS

ITEM No	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: SONORA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	1	R-2042	B-SC-S	A47-500K-2	Q13-133	L48	Volume
B	Shaft			Not Req.	RN-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	U5-28	Contrast
R2A	100KΩ	1	R-2050	AB-505		Q17-108	L2	Brightness
B	Shaft			AK-3		Not Req.	Not Req.	
H3A	100K	1	R-2051	BX-40	A47-100K-S			Vertical Hold
B	Shaft			Not Req.	RN-3			
R4A	500K	1	R-2048	BX-50	A47-500K-3	Q11-133		Height
B	Shaft			Not Req.	RN-3	TQ		
R5A	5Meg	1	R-2047	AK-19	A47-1Meg-3	Q11-141	PTA58L	Vertical Lin. (Wire-wound)
B	Shaft				RN-3	TQ	Not Req.	
R6A	5000Ω	2	R-2046		39-5000			

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No	RATING: OHMS	WATT	REPLACEMENT DATA: SONORA PART No.	IRC PART No.	NOTES
R7	470K			BTS-470K	
R8	470K			BTS-470K	
R9	10K			BTS-10K	
R10	22000			BTS-2200	
R11	33000			BTS-3300	
R12	10000			BTS-1000	
R13	220K			BTS-220K	
R14	4700			BTS-4700	
R15	10000			BTS-1000	
R16	33000			BTS-3300	
R17	10K			BTS-10K	
R18	10K			BTS-10K	
R19	1500			BTS-150	
R20	470			BTS-47	
R21	4700			BTS-470	
R22	1800			BTS-180	
R23	68000			BTS-6800	
R24	1Meg			BTS-1Meg	
R25	3.9Meg		M-5479	BTS-3.9Meg	
R26	1Meg			BTS-1Meg	
R27	820			BTS-82	
R28	4700Ω	2		BTS-4700	
R29	100K			BTS-100K	
R30	56K			BTS-56K	
R31	56K	1		BTA-56K	
R32	5600			BTS-5600 K	
R33	270K 5%			BTS-270K 5%	
R34	4700			BTS-470	
R35	5600			BTS-560	
R36	220Ω			BTS-220	
R37	390K			BTS-390K	
R38	22K			BTS-22K	
R39	560K			BTS-560K	

ITEM No	RATING: OHMS	WATT	REPLACEMENT DATA: SONORA PART No.	IRC PART No.	NOTES
R40	4700Ω			BTS-4700	
R41	4700Ω			BTS-4700	
R42	270K			BTS-270K	Note 1
R43	470K			BTS-470K	
R44	3300Ω			BTS-3300	
R45	1800Ω			BTS-1800	
R46	1.2Meg	3		BTS-1.2Meg	
R47	2700Ω			BTS-2700	
R48	820Ω	1		BTA-820	
R49	560Ω				
R50	680Ω				
R51	22K				
R52	120K				
R53	47K				
R54	100K				
R55	10K				
R56	56K				
R57	180K				
R58	56K				
R59	120K				
R60	47Ω				
R61	8200Ω	3		BTB-8200	
R62	150K	1		BTA-150K	
R63	150K	1		BTA-150K	
R64	150K	1		BTA-150K	
R65	68000Ω			BTS-6800	
R66	2.2Ω		R-2176	BW-2.2	
R67	27Ω	10	R-2125	PW10-27	
R68	27Ω	10	R-2125	PW10-35	
R69	27Ω	10	R-2125	PW10-25	
R70	270Ω	10	R-2124		
R71	5.5Ω	5	R-1409	FRS 5	
R72	220K			BTS-220K	

Note 1: Some versions may use 390K in this application.

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No	USE	REPLACEMENT DATA: SONORA PART No.	Hallderson PART No.	Merit PART No.	RCA TYPE No.	Ram PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	Vert. Osc. Trans.	R-2181	B8702 ↓	A-3003 ↓	20V11 ↓	V405 ↓	A-8125 ↓	36A03 ↓	A-97X ↓
T2	Horiz. Output Trans.	R-3057-1 ②	FB648* ③	HV0-58* ③	V31 ①	X12F* ③	HO-250* ③	FLY-40* ③	D-83* ③
T3	Vert. Output Trans.	R-3058 ↓	FB26 ↓	A-3030 ↓	23GT1 ①	V32 ①	A-8141 ①	26B54 ↓	A-104X ①
T4A	Yoke(90°) Horiz(T4MD)	R-3060	DF07 ③	MDF-52 ③	23SD1 ③	T90F19/43 ③	DY-38A ③	Y-16 ③	Y-41-1 ③
B	Vert(43MD)								

① Drill new mounting hole(s).
② Some versions may use alternate part #R-3097.
③ Use original mtg. screws and trim term. board to duplicate original.
④ Use original yoke damping network, if necessary.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Hallderson Replacement Connections	Merit Replacement Connections	RCA Replacement Connections	Ram Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
8	8	8	8	8	8	8	8
7	3	6	6	3	6	3	3
6	N. C. See Note 5	N. C. See Note 5	N. C. See Note 5	N. C. See Note 5	N. C. See Note 5	N. C. See Note 5	N. C. See Note 5
5	N. C. See Note 6	N. C. See Note 6	N. C. See Note 6	N. C. See Note 6	N. C. See Note 6	N. C. See Note 6	N. C. See Note 6
3	2	3	2	2	2	2	2

⑤ To provide horiz. damping, connect approx. 50-100MMF ± 2KV in series with resistor R65 across horiz. yoke terms #3 and #7.
⑥ Remove capacitor C71 from circuit, and to insure sufficient width, connect approx. 100MMF across horiz. yoke terms #3 and #7.

TRANSFORMER (AUDIO OUTPUT)

ITEM No	IMPEDANCE: PRI	SEC	REPLACEMENT DATA: SONORA PART No.	Hallderson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	13.5K	3-4Ω	R-2050	EI18	A-3094	A-3681	26B47 ①	S-31X	① Drill one new mtg. hole.

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP	REPLACEMENT DATA: SONORA PART No.	QUAM PART No.	NOTES
SP1	4"	PM	3-4Ω	R-2368 ↓	4A07	↓ Some versions may use part #R-1526.

COILS (RF-IF)

ITEM No.	USE	SONORA PART No.	NOTES
L1	Ant. Trans.	345187	
L2	41MC Trap	343085	
L3	Ant. Filter Coil	345130	
L4	Ant. Coil	345107	Channel 13
L5	Ant. Coil & Wafer Assembly	135780	
L6	Flamenol Choke	343085	
L7	RF Coil	343106	Channel 13
L8	RF Coil & Wafer Assembly	135781	

ITEM No.	USE	SONORA PART No.	NOTES
L9	Mixer Coil	343100	Channel 13
L10	Mixer Coil & Wafer Assembly	135774	
L11	IF Coil	345307	
L12	Osc. Coil	343104	Channel 13
L13	Osc. Coil & Wafer Assembly	135775	
L14	Osc. Coil	343118	Channel 13

ITEM No.	USE	REPLACEMENT DATA: SONORA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	NOTES
L15	1st Video IF	R-3052			TV-130	8258
L16	RF Choke	R-1431	19-0023*			88 Microhenries; Wound on 47000 resistor.
L17	2nd Video IF	R-3054	17-4434		TV-130	8234
L18	Series Peaking Coil	R-1980			TV-130A	8138A 356 Microhenries; Wound on 12K resistor.
L19	4.5MC Trap	N-3011	20-1004		TV-151	1470
L20	Shunt Peaking Coil	N-1949				1140 Microhenries; Wound on 47000 resistor.
L21	1st Sound IF	R-1835	17-2400		TV-151	1469
L22	2nd Sound IF	R-2180				Primary tapped ② .6Ω
L23	Quadrature Coil	R-3059	20-1005			1480

* Parallel with 4700Ω resistor.
▲ Parallel with 12K resistor.

TRANSFORMER (HORIZ. OSC.)

ITEM No.	DC RES. PRI.	SEC.	REPLACEMENT DATA: SONORA PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	RCA TYPE No.	Ram PART No.	Thordarson PART No.	NOTES
L34	68Ω		R-1458						RS-7	Horiz. Freq. 10-67.5MCIlliheries, Tapped @ 43Ω Horiz. Waveform 6-13. 5MCIlliheries
L35	44Ω		R-1408						RS-8	

FILTER CHOKE

ITEM No.	RATINGS: TOTAL DIRECT CURRENT	D.C. RESISTANCE	INDUCTANCE @ CURRENT 1000 ~(+)	REPLACEMENT DATA: SONORA PART No.	Halderson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L36	.210A	58Ω	.94HY	R-3056	C5041 ①	C-2996 ①	C-3338 ↓	36C44 ①	C-32X ①

① Drill one new mounting hole.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	SONORA PART No.	REPLACEMENT DATA
K1	Sync Coupler	270MMF, 10000MMF, 25MMF, 330K, 10K, 2.2Meg	R-1459	Aerovox PA-531 Centralab PC-280 Sprague ST-1
K2	Vertical Integrator	470MMF, 4700MMF, 22K, 10K	R-1458	Aerovox PA-383-2 Centralab PC-108 Sprague V-65

RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: SONORA PART No.	FEDERAL PART No.	GENERAL ELECTRIC PART No.	INTERNATIONAL PART No.	MALLORY PART No.	RADIO RECEPTOR PART No.	SARKES TARZIAN PART No.
M1	.210A	R-3147 ①	1038A ①	1N1005 ②	6HS250 ①	85250 ①	6Q3 ①	250A 1
M2	.210A	R-3147 ①	1038A ①	1N1005 ②	6HS250 ①	85250 ①	6Q3 ①	250A 1
M3		R-3141 ①			1T1 ①			

① Selenium type.
② Germanium type.

CRYSTAL DIODES

ITEM No.	QUAL-TYPE	REPLACEMENT DATA: SONORA PART No.	SYLVANIA PART No.	NOTES
M4	1N60	1N60*	1 N60	(Pigtail) Video Detector

* Alternate part #1N64 may be used in some versions.

MISCELLANEOUS

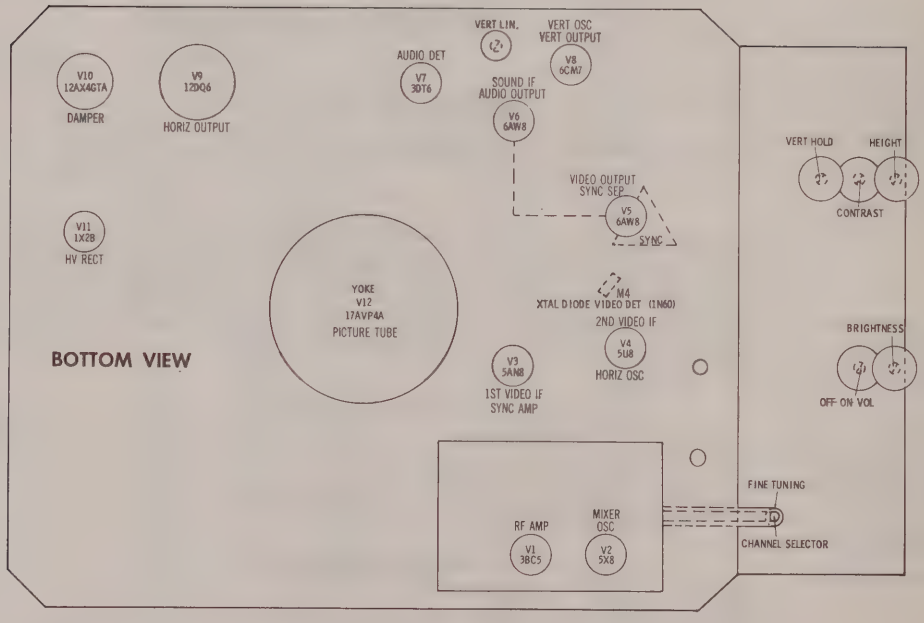
ITEM No.	PART NAME	SONORA PART No.	NOTES
M5	Tuner	R-3131	VHF. Includes 3rd Video IF (Part #R-3059), M4, Series Tweet Filter (Part #R-1420), Series Peaking Coil (Part #R-1470), and Capa. Tweet filter not used in some versions.
M6	Centering Device	R-2043	
M6	Ion Trap	R-2044	
	Safety Glass	R-2070	
	Knob	R-2076	Channel Selector
	Knob	R-2077	Fine Tuning
	Knob	R-2148	On-Off Volume
	Knob	R-2149	Contrast

SONORA MODELS 565, 576, 605, 613

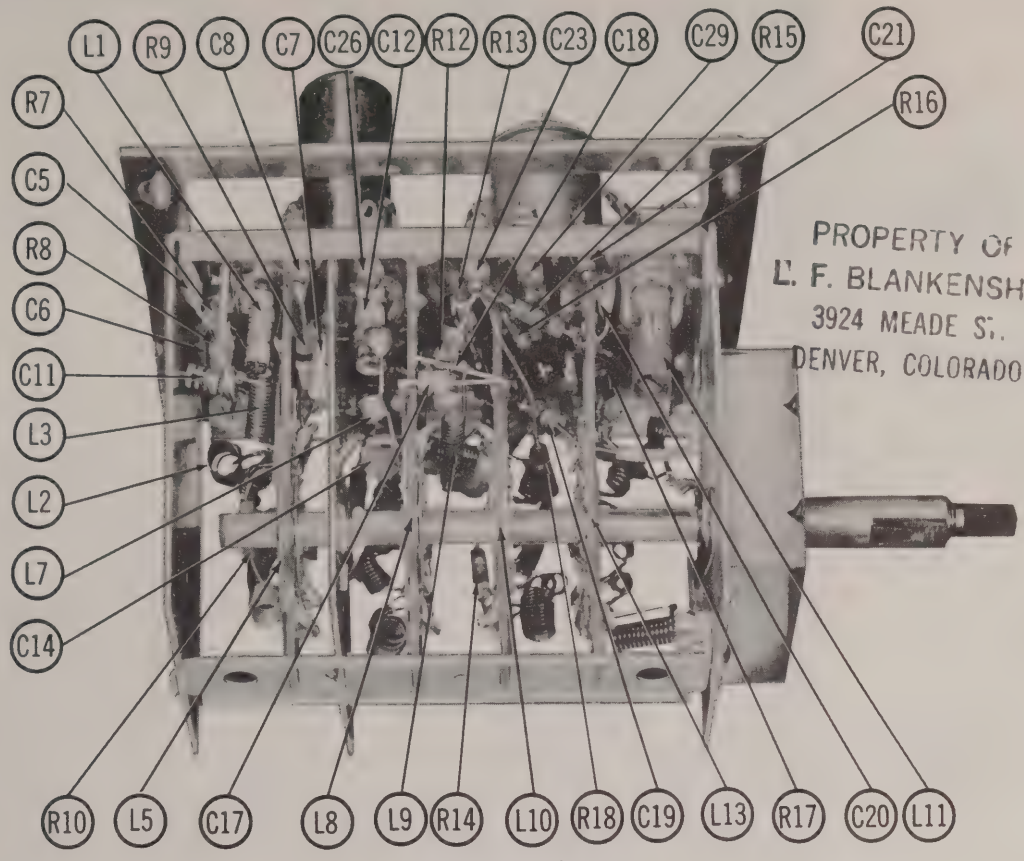
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	3BC5	1Meg	0Ω	9.5Ω	10Ω	†3000Ω	†7000Ω	0Ω		
V2	5X8	0Ω	10K	†13K	10Ω	11Ω	0Ω	220K	†6000Ω	†3700Ω
V3	5AN8	†12K	22K	0Ω	9.5Ω	8.5Ω	†2900Ω	†2900Ω	1Meg	47Ω
V4	5U8	‡240K	.1Ω	†3200Ω	8.5Ω	7.5Ω	†3200Ω	180Ω	0Ω	270K
V5	6AW8	0Ω	2.2Meg	†390K	6.5Ω	7.5Ω	•100Ω	800K	†2700Ω	†4700Ω
V6	6AW8	0Ω	56K	†56K	6.5Ω	4.8Ω	220Ω	•250K	†2700Ω	†500Ω
V7	3DT6	5Ω	560Ω	4.8Ω	4Ω	†270K	†3200Ω	560K		
V8	6CM7	‡4400Ω	NC	0Ω	11Ω	12Ω	‡•1.8Meg	•400K	2.2Meg	•2800Ω
V9	12DQ6	NC	66Ω	TP	†8200Ω	120K	NC	68Ω	0Ω	TOP CAP ‡16Ω
V10	12AX4GTA	NC	NC	7Meg	NC	†56Ω	NC	0Ω	2.5Ω	
V11	1X2B	PINS 1 THRU 9 HAVE INFINITE RESISTANCE								TOP CAP ‡241Ω
V12	17AVP4A	2.5Ω	1800Ω	Pin 6 0Ω	Pin 10 ‡56K	Pin 11 •120K	Pin 12 4Ω			

† MEASURED FROM OUTPUT OF M2.
‡ MEASURED FROM PIN 3 OF V10.
• THIS READING WILL VARY, CONTROL SET FOR NORMAL OPERATION.
NC NO CONNECTION
TP TIE POINT



TUBE PLACEMENT CHART



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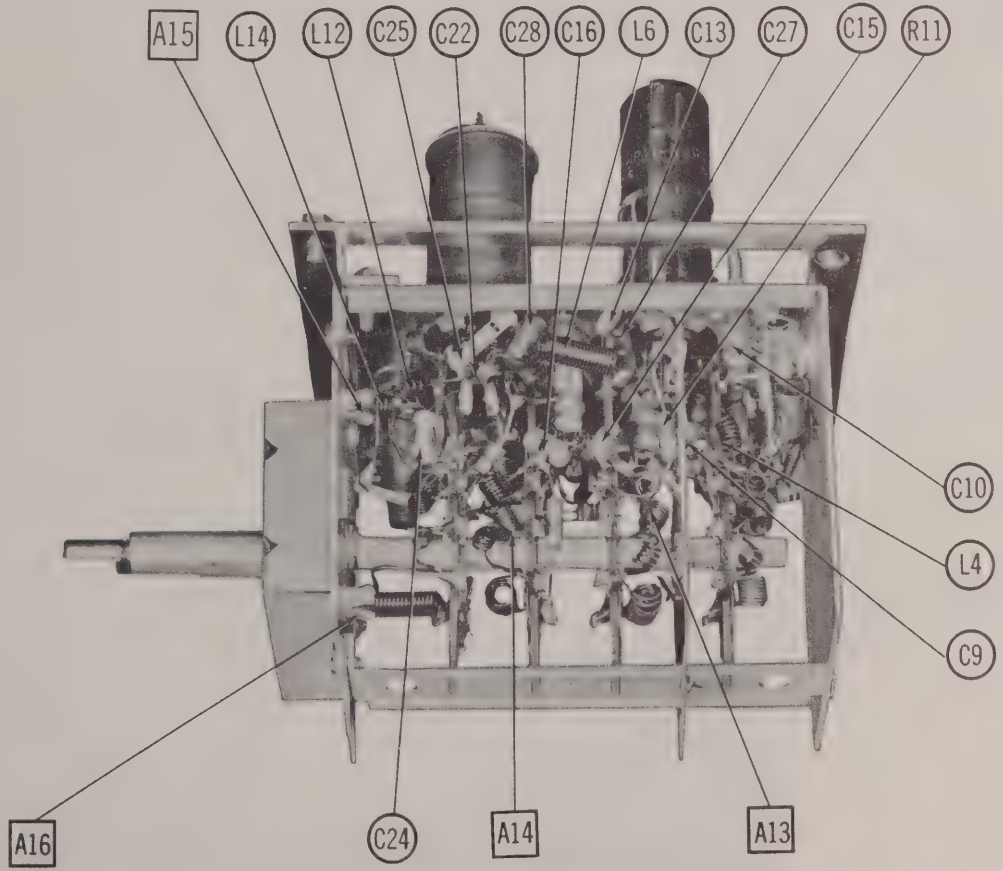
DENVER, COLORADO

TUNER-LEFT SIDE



TUNER-RIGHT SIDE

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[illegible] COLORADO

TRUETONE
MODEL D3600A

TRADE NAME	Truetone Model D3600A
SUPPLIER	Western Auto Supply Co., 2107 Grand Ave., Kansas City, Mo.
TYPE SET	Battery Operated Portable AM Receiver
TUBES (Four)	Types 1R5 Converter, 1U4 IF Amplifier, 1U5 Det-AVC-AF Amp., 3Q4 Output

POWER SUPPLY 1.5 Volts "A" Supply @ 67.5Volts "B" Supply RATING 230MA @ 1.5Volts DC & 7MA @ 67.5Volts DC
TUNING RANGE—BROADCAST 535KC - 1630KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.1MFD	High side to antenna lug on tuning gang. Low side to chassis.	455KC (400~ Mod)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Adjust for maximum output.
2.	"	"	1630KC	"	"	A4	"
3.		Loop	1400KC	Tune to 1400KC signal.	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
4.		"	535KC	Tuning gang fully closed.	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	1R5	
V2	IF Amplifier	1U4	
V3	Det-AVC-AF Amp.	1U5	
V4	Output	3Q4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	TRUETONE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1	10	75	EC-11	SRE70V10	BBR10-90	TC-42	TD-10-150	FM-1508	TVA-1406

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	TRUETONE PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	100		CC-5	NPO-S1100	D6-101	TZ30	801-101	ZT-531	5TCC-T1	
C3	5000		CC-3	BPD-005	DD-502	K080	811-005	DC525	5HK-D5	
C4	1500		CC-20	S1500	D6-152	TP54	GP2L-152	UC-5215	5GA-D15	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	TRUETONE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	VC-40	B-70-S	A47-1Meg-Z	Q13-137	U53	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-20	76-2	US-27	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

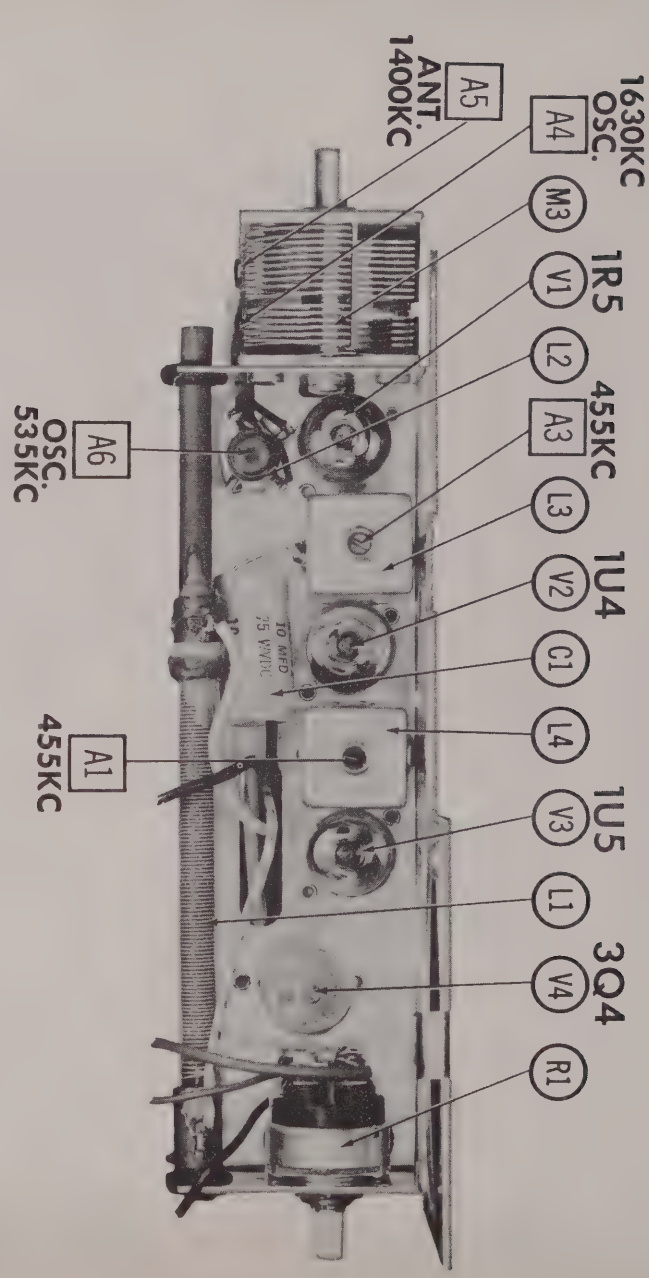
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R2	220K		IR-20	BTS-220K	
R3	3.3Meg		IR-23	BTS-3.3Meg	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	TRUETONE PART No.	IRC PART No.	
R4	620Ω 5%		IR-39	BTS-620 5%	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	TRUETONE PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	9800Ω	3-4Ω	Part of speaker SPK-21			A-3329		S-11X	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	RATINGS			REPLACEMENT DATA			NOTES
	SIZE	FIELD	V. C. IMP.	TRUETONE PART No.	QUAM PART No.		
SP1	3"	PM	3-4Ω	SPK-21			

COILS (RF-IF)

ITEM No.	USE	DC RES.		REPLACEMENT DATA				NOTES
		PRI.	SEC.	TRUETONE PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	2.1Ω		LL-30				
L2	Osc. Coil	1.3Ω	8.8Ω	LO-18			71-Osc.	
L3	Input IF	30Ω	30Ω	L1-10	16-6780		13-PC1	
L4	Output IF	38Ω	38Ω	L1-11				

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	TRUETONE PART No.	REPLACEMENT DATA	
K1	Pentode Detector Couplate	2000MMF, 10000MMF, 150MMF, 150MMF, 5000MMF, 4.7Meg, 3.3Meg, 1Meg, 10Meg.		Aerovox Centralab Cornell-Dubilier Erie Sprague	PA521 PC-165 DP-1

BATTERIES

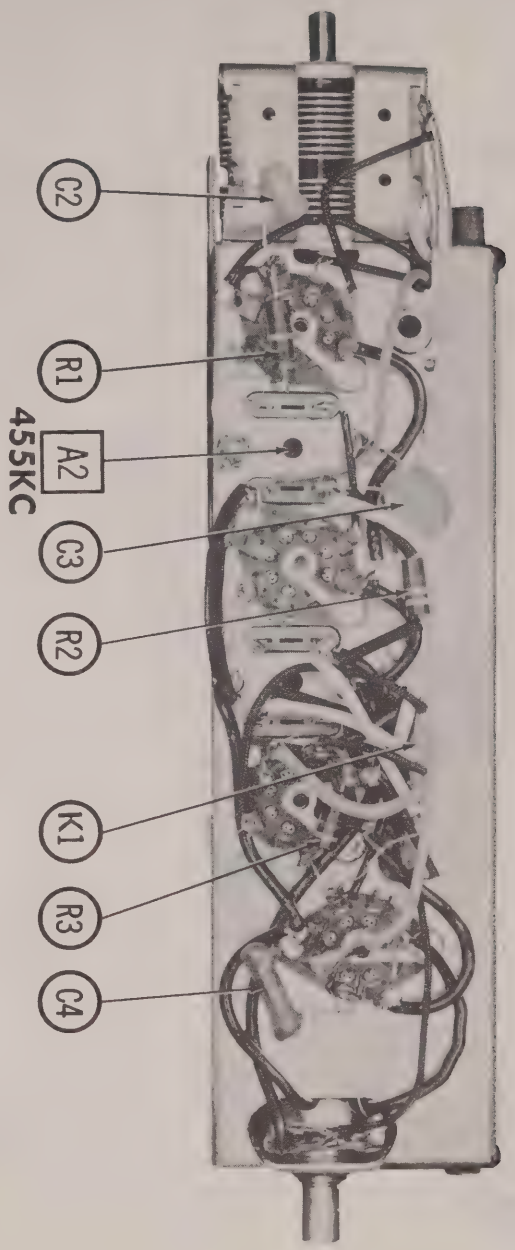
ITEM No.	VOLTAGE	TRUETONE PART No.	REPLACEMENT DATA								
			BURGESS			EVEREADY			MALLORY		
			"A"	"B"	"A-B"	"A"	"B"	"A-B"	"A"	"B"	"A-B"
M1	1.5V "A"		964*			21R*			M-20*		
M2	67.5V "B"			477			P45			M-211P	

* Connect 2 in parallel.

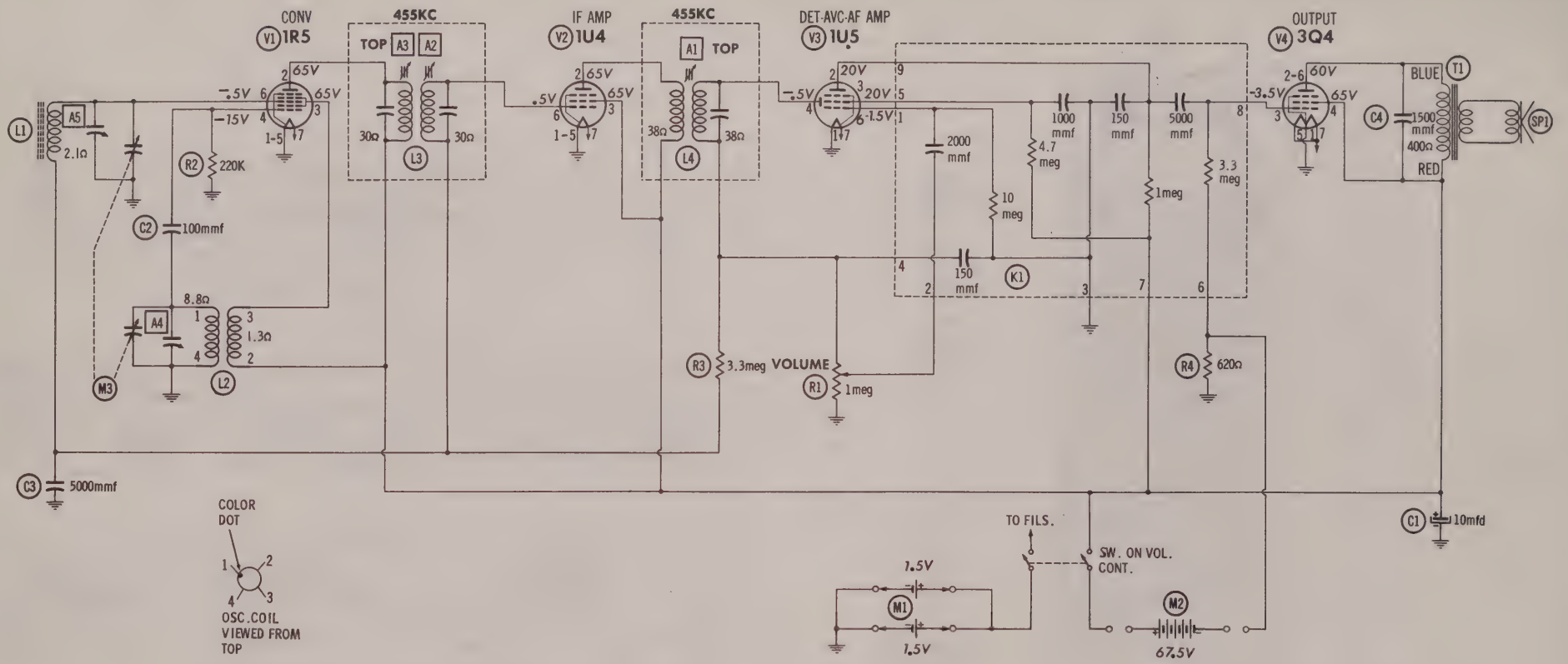
MISCELLANEOUS

ITEM No.	PART NAME	TRUETONE PART No.	NOTES
M3	Tuning Cap.	GC-12	2 Gang (13-240MMF;13-110MMF)
	Cabinet	CA-140	
	Knob	K-130	On-Off-Volume
	Knob	K-131	Tuning

CHASSIS—BOTTOM VIEW



TRUETONE MODEL D3600A



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	1R5	•	†30Ω	†1.3Ω	220K	•	4.3Meg	•
V2	1U4	•	†38Ω	†0Ω	NC	•	4.3Meg	•
V3	1U5	•	†1Meg	†4.7Meg	1Meg	TP	10Meg	•
V4	3Q4	•	†400Ω	3.3Meg	†0Ω	•	†400Ω	•

• DO NOT USE OHMMETER TO MEASURE FILAMENT RESISTANCE.
† MEASURED FROM POSITIVE SIDE OF C1.
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter ;
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum. no signal apllied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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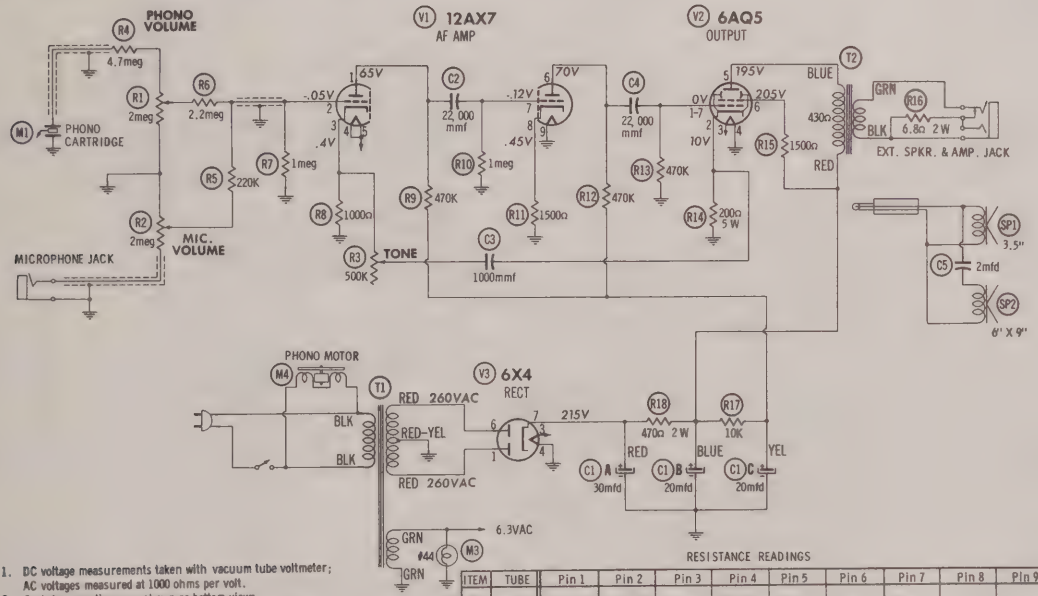
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

V-M
MODEL 156

V-M
MODEL 156

TRADE NAME	V-M Model 156
MANUFACTURER	V-M Corp., Benton Harbor, Mich.
TYPE SET	AC Operated Phono Amplifier With 4 Speed Manual Record Player
TUBES (Three)	Types 12AX7 AF Amplifier, 6AQ5 Output, 6X4 Rectifier
POWER SUPPLY	105-125 Volts AC - 60 Cycles RATING .35 Amp. @ 117 Volts AC



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AX7	† 480K	170K	1000Ω	.8Ω	.8Ω	† 480K	1Meg	1500Ω	0Ω
V2	6AQ5	470K	200Ω	.8Ω	0Ω	† 900Ω	† 2000Ω	470K		
V3	6X4	200Ω	NC	.8Ω	0Ω	NC	220Ω	50K		

† MEASURED FROM PIN 7 OF V3.
NC NO CONNECTION.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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353-15

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	AF Amplifier	12AX7	
V2	Output	6AQ5	

ITEM No.	USE	TYPE	NOTES
V3	Rectifier	6X4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA V-M PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	30	450	12075	PR4-175	CO280	FP396.1		T-135 MT-4530	R2353*
B	20	450							
C	20	450							

* Non catalog item.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	REPLACEMENT DATA V-M PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	22000		12074	BPD-02	DD-203	BYB6S2	ED-02	DC521	5HK-S2	
C3	1000		12066	BPD-001	DD-102	BYA6D1	ED-001		5HK-D1	
C4	22000		12074	BPD-02	DD-203	BYB6S2	ED-02		5HK-S2	
C5	2.0	100	12069	P282Z-2.0		MP2W2				

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA V-M PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2Meg	½	12314	B-76	A47-2Meg-Z	Q13-139	U55	Volume (Phono)
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R2A	2Meg	½	12314	B-76	A47-2Meg-Z	Q13-139	U55	Volume (Microphone)
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
R3A	500K	½	12315	B-60	A47-500K-Z	Q13-133	U48	Tone
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA V-M PART No.	IRC PART No.	NOTES
R4	4.7Meg		11613	BTS-4.7Meg	
R5	220K		11293	BTS-220K	
R6	2.2Meg		11533	BTS-2.2Meg	
R7	1Meg		11453	BTS-1Meg	
R8	1000Ω		10733	BTS-1000	
R9	470K		11373	BTS-470K	
R10	1Meg		11453	BTS-1Meg	

ITEM No.	RATING OHMS	RATING WATT	REPLACEMENT DATA V-M PART No.	IRC PART No.	NOTES
R11	1500Ω		10773	BTS-1500	
R12	470K		11373	BTS-470K	
R13	470K		11373	BTS-470K	
R14	200Ω	5	11979	PW7-200	
R15	1500Ω		10773	BTS-1500	
R16	6.8Ω 5%	2	10215		
R17	10K		10973	BTS-10K	
R18	470Ω	2	10655	BTB-470	

TRANSFORMER (POWER)

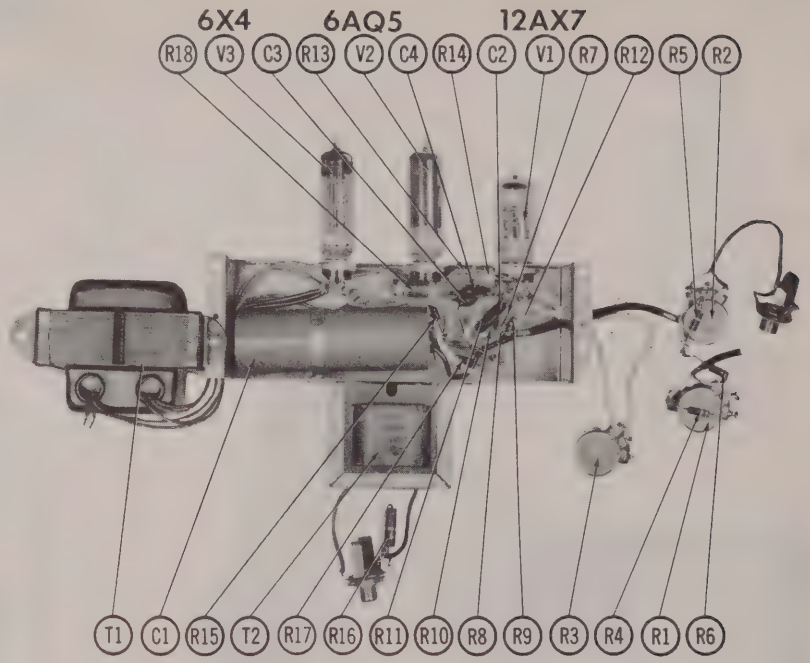
ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	RATING SEC. 3	REPLACEMENT DATA V-M PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
T1	117VAC ③ .35A	490VCT ③ .045A	6.3VAC ③ 1.4A		12535	P9203 ① ② ③	P-3047 ③	PM8402 ① ② ③	22R00 ① ② ③	R-6B ① ② ③

① Tape 5V winding.
② Tape center tap on 6.3V winding.
③ Fabricate mounting.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	IMPEDANCE SEC.	REPLACEMENT DATA V-M PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	6800Ω	11Ω	12532	Z1011	A-2902 ①	A-3849 ①	24S61 ①	S-53X ①	① Drill new mtg. hole.

CHASSIS—BOTTOM VIEW



SPEAKER

ITEM No.	TYPE SIZE	TYPE FIELD	TYPE V. C. IMP.	REPLACEMENT DATA V-M PART No.	REPLACEMENT DATA QUAM PART No.	NOTES
SP1	3½"	PM	15Ω	9799	3A15T	
SP2	6" X 9"	PM	11Ω	9878	69A3Z11	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA V-M PART No.	ASTATIC PART No. CARTRIDGE	ASTATIC PART No. NEEDLE	ELECTRO-VOICE PART No. CARTRIDGE	ELECTRO-VOICE PART No. MOUNT	REMARKS
M1	7447-A			56	* PT-1	* Not required unless original mounting bracket is damaged.

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA V-M PART No.	JENSEN PART No.	WALCO PART No.	REMARKS
M2		†CRA55 or †CRA55LP or ♦CRA55D or ♦CRA55LPD	†W-64S or †W-64MGS	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	V-M PART No.	NOTES
M3	Pilot Light	4654	#47
M4	Phono Motor	6950	
	Knobs	14458-T	Amp. Control (3 Used)
	Cabinet	9885-A	

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V-M
MODEL 1200A

GENERAL INFORMATION

V-M Model 1200A Tri-o-matic Record Changers are designed to play in automatic sequence a stack of records and shut off after playing the last record.

The V-M Model 1200A plays at four different turntable speeds; 16 2/3, 33 1/3, 45, or 78 r.p.m.

As many as ten 12", twelve 10", or any assortment of 10" and 12" records (providing they are of the same speed and same type of groove) may be intermixed in any order.

A stack of twelve 7", 33 1/3 r.p.m. records or a stack of twelve 7", 45 r.p.m. records (with the use of a "45" Adaptor Spindle) will also play on this changer.

Record separation is accomplished by movement of a finger in the center spindle. This finger directly separates records having a 1/4" centerhole and actuates the knives and shelves of the centerpost used for the playing of the 45 r.p.m. records having a 1 1/2" centerhole.

Connect this changer to an outlet supplying 117 volts, 60 cycle AC only, unless otherwise specified.

Manufactured by:

V-M Corporation

Benton Harbor, Michigan

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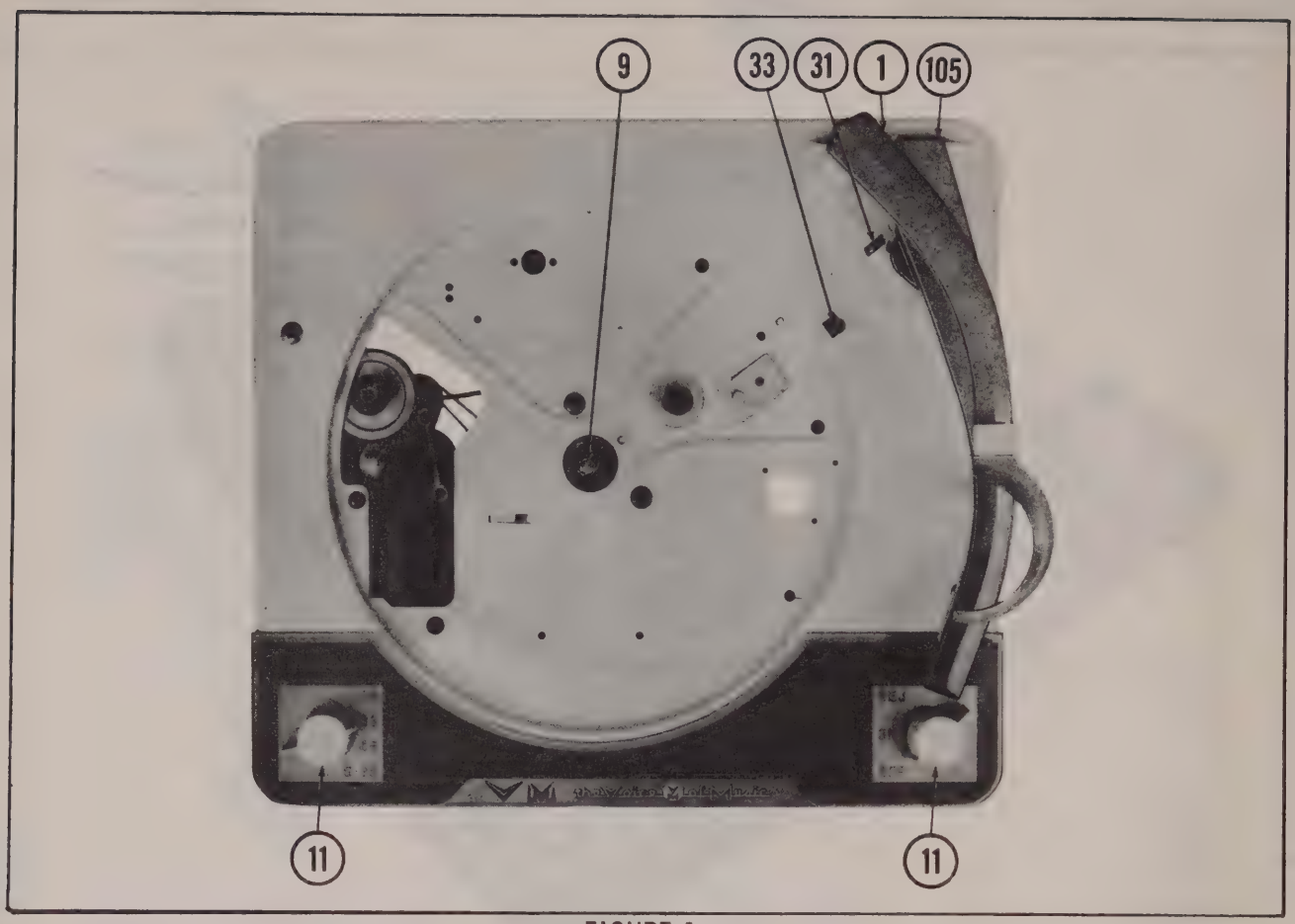

FIGURE 1

CONTROLS

Two controls are provided on the baseplate, one on the right front corner and one on the left front corner.

The right-hand control is the Off-On-Reject control. Turning this control to the center or "On" position energizes the motor and starts the turntable, when turned to the right (clockwise) to the "Rej." position it starts the mechanism into complete automatic operation. The mechanism will shut off automatically after the last record has been played but can be shut off manually by turning this control to the left (counter-clockwise).

The left hand control is the speed control. It has four normal positions, "16", "33", "45", and "S78" to select the turntable speed desired. This control should be turned to the "S-78" position if the changer is not expected to be in use for an extended period of time.

PREPARING FOR OPERATION

Shipping Bolts –

Before placing in operation, the changer must be floating freely on the mounting springs. To float the changer, turn the two shipping bolts in a clockwise direction as far as they will go.

Leveling Record Changer-

It is essential to have the record changer absolutely level. Use a torpedo or similar type level on the record changer baseplate. Use adequate shims to level the record changer pan or combination cabinet to achieve perfect level.

OPERATING INSTRUCTIONS

Loading-

1. Pull straight up on record support knob (2) until record support clears spindles, swing support out over pick-up arm.

2. Place records on spindle and lower to offset shelf. Hold records level and replace record support over spindle.

Starting-

To start the changer, after checking that the stylus and speed controls are in the position corresponding to type records to be played, turn "Off-On-Rej." knob to "Rej." and release. The changer will operate automatically until the last record has been played, at which time, the pick-up arm is returned to its rest and the supply to the motor is switched off.

Rejecting-

To reject a record at any time while the changer is operating, turn "Off-On-Ref." knob to "Rej." and release.

Stopping-

The changer may be stopped any time a record is playing by turning changer control knob to "Off". Lift pick-up arm and place on rest.

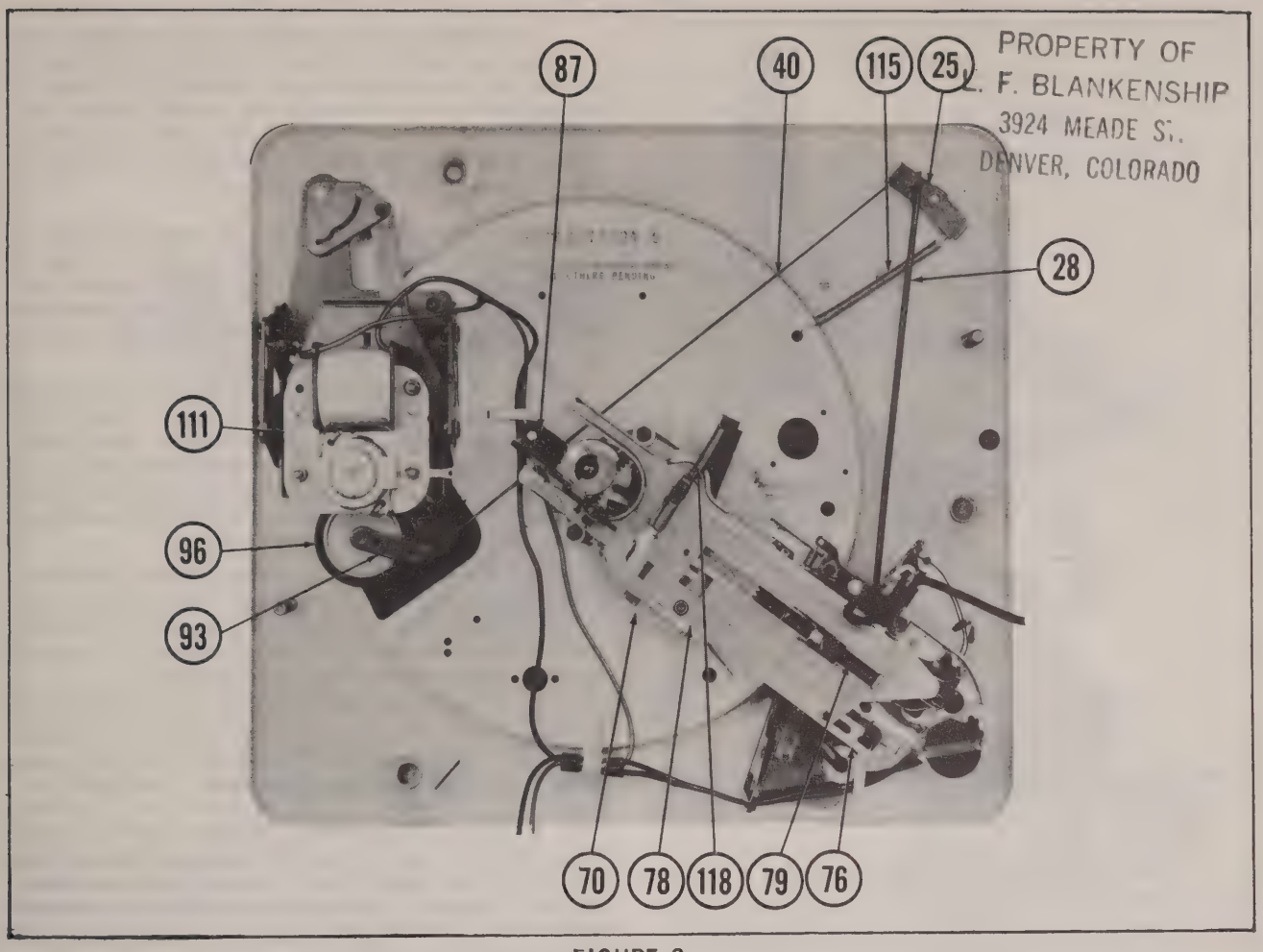

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FIGURE 2

Unloading-

Lift record support clear of spindle and swing out over pick-up arm. Using both hands, with fingers under the edge of bottom record, lift records straight up and off spindle.

Manual Operation-

Records that do not have starting and fast-finishing grooves must be played manually. To play records manually, lift the records support arm and swing to the right until clear of the turntable. Place record on spindle and lower to spindle shelf. Tilt record down toward left front of baseplate and lower to turntable. Turn changer control knob to "On" position only. Gently place needle on record.

Repeating Of 7", 10", Or 12" Records-

To repeat a record, swing record support clear of turntable, place record on turntable and start changer. Record repeats until controls is turned "Off". If a 12" record is repeated, wait for the changer to finish cycling and reposition the pick-up arm manually to the 12" position.

CHANGE CYCLE

It is recommended that the change cycle operation be observed by rotating the turntable by hand. The action described below can then be readily followed and the function of each part more easily understood.

This changer is provided with what is known as velocity trip mechanism. The change cycle is started by the faster inward motion of the pick-up arm when the needle enters the trip grooves at the end of the record. Only records having fast-finishing grooves will operate this trip.

The pick-up arm and hinge assembly, and trip finger cam and shaft assembly (49) are secured together so that they move in unison, as the pick-up arm nears the end of a record, trip finger cam (49) pushes trip link (76), which, in turn, engages and pivots trip lever (75). As trip lever (75) pivots, pawl lever (73) pivots with it carries the trip pawl toward the hub on the turntable. While a record is playing, the small motions of the trip pawl are not sufficient to cycle the mechanism because on each revolution of the turntable the wiping contact by the hub projection moves the trip pawl back to clear the projection.

In the first revolution of the turntable during which the pick-up arm advances rapidly, the trip pawl is moved far enough to definitely engage the projection on the turntable hub. The contact between the trip pawl and the turntable hub projection gives the necessary push for the teeth in main gear (70) to engage the teeth in the turntable hub, thus causing main gear (70) to rotate. This in turn, starts the lateral travel of the slide assembly (78). The slide assembly (78) moves to the rear thru the action on an eccentric mounted pin on main gear (70), which rides in the cross slot on the slide assembly (78).

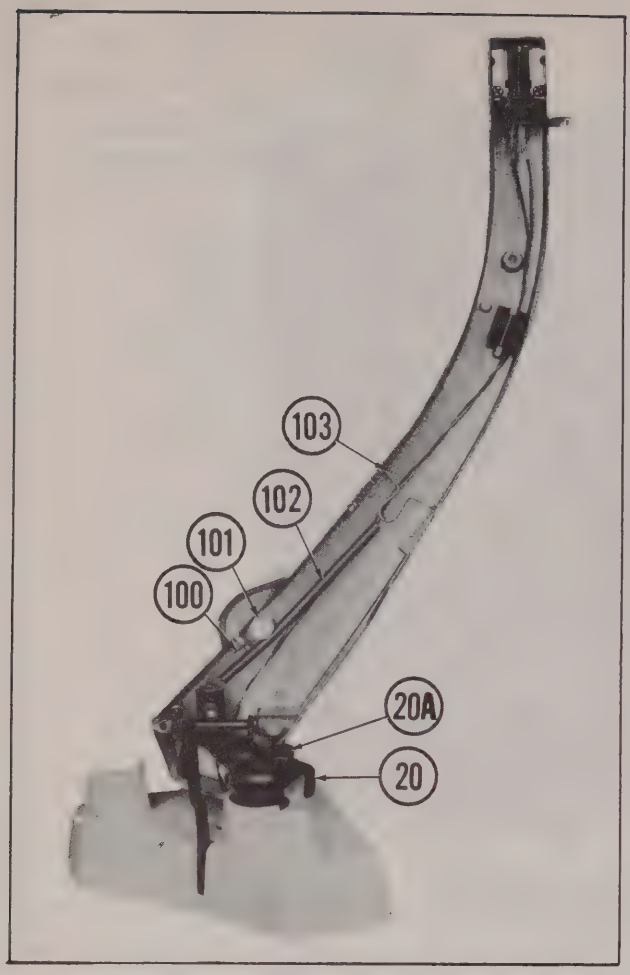


FIGURE 3

As the slide assembly begins to move, the cam surface on the rear of the slide pushes lift pin (19) upward, raising the pick-up arm clear of the record. At the same time, trip finger cam (49) is pushed up by the force transferred through lift pin spring (51). The raising of trip finger cam (49) causes the two formed dimples in the trip finger cam to engage the two holes in the pick-up arm return located (45), and couple them together. This directs the movement of the pick-up arm during the change cycle.

Slide assembly (78) continues to move away from the centerpost until the formed end of slide (78) pushes against the pick-up arm return locator (45). This relieves the force of pick-up arm return locator (45) against shut-off lever assembly (66), permitting shutoff lever spring (65) to return the shutoff lever (66) to the normal (raised) position.

After cycling slide (78) has raised the pick-up arm and is moving it outward, the tab on front of slide assembly (78) contacts the ejector bracket assembly (87). Ejector bracket (87) moves push rod (56) upward, actuating spindle assembly (9), to drop a record to the turntable.

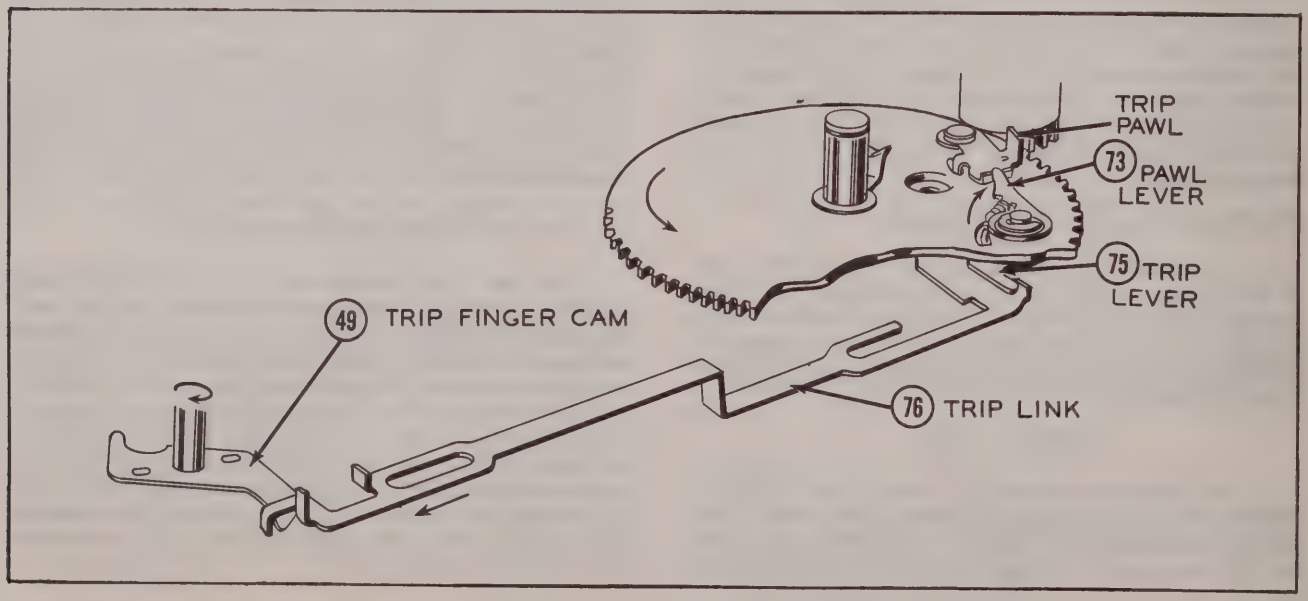
Simultaneously, the trip pawl on top of main gear (70) contacts and rides along the curved finger of the muting switch bracket assembly (67). This action moves the trip pawl and its associated levers into a neutral position. This prevents the trip pawl from re-engaging with the projection on the turntable hub which would start a new change cycle.

At this time, the cam surface of the bracket located on top of main gear (70) moves reset lever (61) to its mid-position (10" set-down) where it is held by the 12" record selector (31). Slide assembly (78) continues to the rear and then starts forward.

If 7" records are being changed, the rubber bumper (33) on 7" set down lever (58) is free to move upward. This action on 7" set-down lever (58) raise reset lever (61) to the upper position (7 set-down).

If 10" records are being changed, the 7" set-down lever (58) will not operate as the rubber bumper (33) will contact the edge of the 10" record and reset lever (61) will remain in the mid-position (10" set-down) as originally placed by the caming action of the bracket on top of main gear (70).

When a 12" record drops to the turntable, it strikes the 12" record selector (31) and forces it backward. This disengages the end of reset lever (61) from the edge of the 12" record selector (31) and permits the reset lever (61) to drop down into the recess at the bottom of the 12" record selector (31). This position of the reset lever (61) causes it to engage the bottom step of the pick-up arm return locator (45) and will push the pick-up arm to land on the edge of a 12" record.



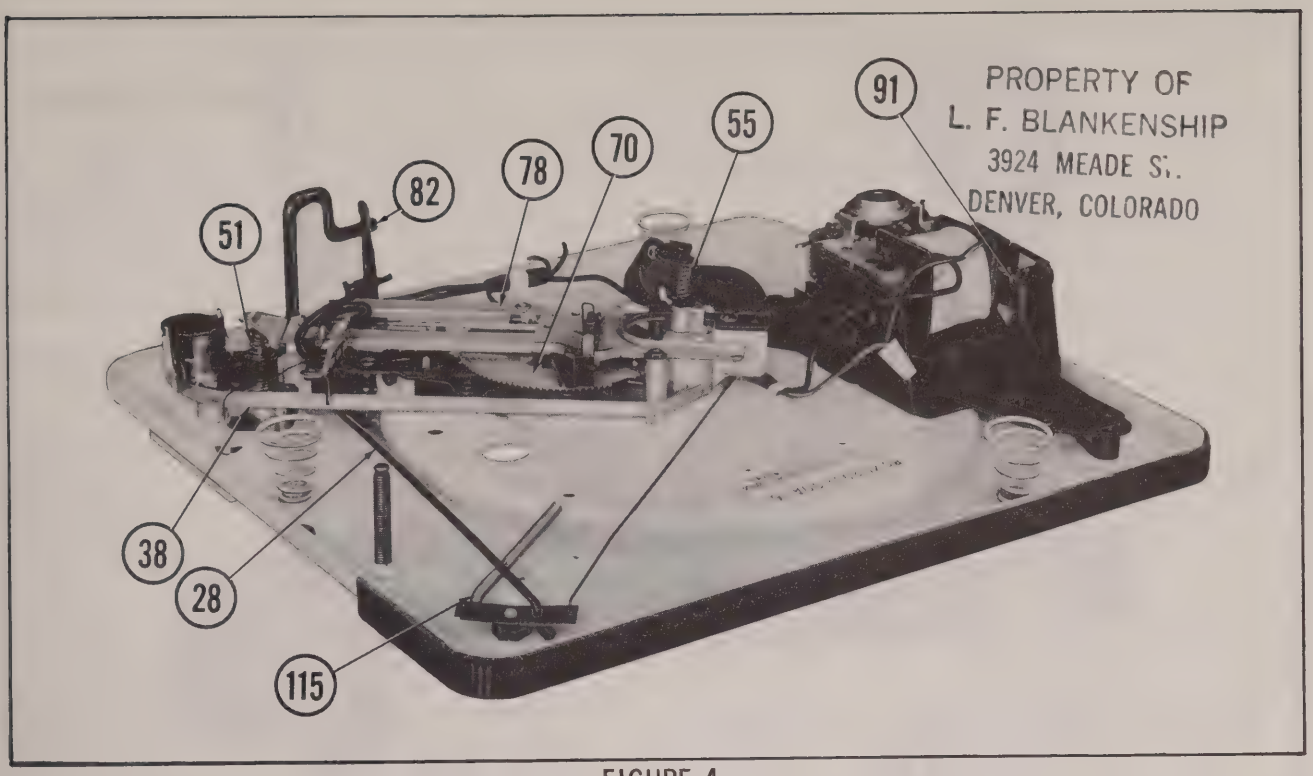


FIGURE 4

As the slide assembly (78) continues forward, the tab on the rear of the slide moves clear of the pick-up arm return locator (45) and the trip finger cam (49), which are still locked together. This action permits the pick-up arm return spring (43) to move the pick-up arm inward until one of the three set-down steps in the pick-up arm return locator (45) strike the reset lever (61), which has been positioned by the record being changed (see above). This stops the inward movement of the pick-up arm directly above the point of landing. The pick-up arm is then lowered to the lead-in groove of the record as the lift pin (19) rides down the incline on the rear of the slide assembly (78). As the pressure is released from lift pin spring (51), trip finger cam (49) and pick-up arm return locator (45) separate. This permits the pick-up arm to move freely across the record.

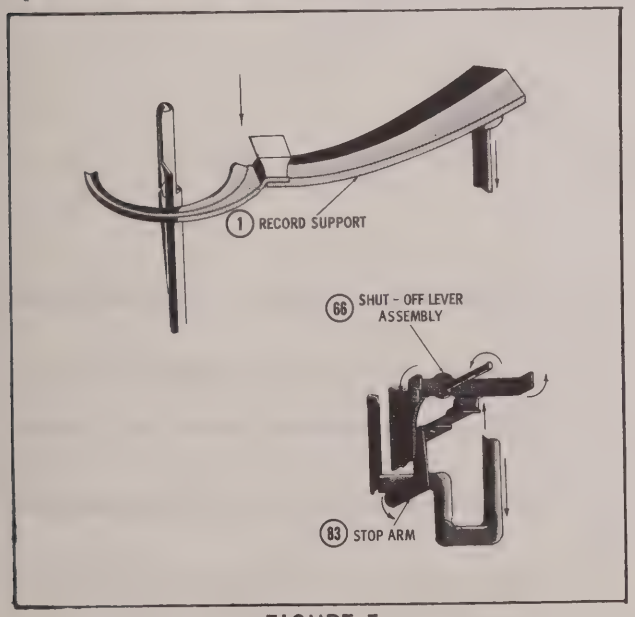


FIGURE 5

After the mechanism has been tripped it again follows the preceding sequence of cycling and playing the records until the last record of the stack has been played.

As the last record of the stack drops to the turntable the record support (1) drops below the shelf on the spindle assembly (9) and the lower end of record support shaft (82) contacts the stop arm on the record support guide assembly (83). This stop arm in turn applies force to shut-off lever (66). At this moment the cycling slide (78) is in the outermost position (away from center-post) and the end of the shut-off lever (66) is forced against the escape lever (78A) which prevents it from lowering further.

As the cycling slide (78) returns to the out of cycle position the end of shut-off lever (66) slides off the escape lever (78A) permitting the end to extend down through the slot in the cycling slide. At this time the pick-up arm has rotated too far to be blocked by the other end of the shut-off lever (66) and the pick-up is permitted to land on the record.

After the lost record has been played the mechanism again goes into change cycle, and the cycling slide (78) moves into its outermost position. At this moment the force which has been applied to the shut-off lever (66) from the record support shaft (82) causes the end of shut-off lever (66) to lower, thus extending further through the slot in cycling slide (78). The other end of shut-off lever (66) raises and blocks the pick-up arm return locator (45) which at this moment is held back by the cycling slide (78).

As the cycling slide (78) moves back toward the centerpost, it carries the raised trip link (76) along until finally the formed end of the trip link (76) pushes control lever (41) which in turn actuates power switch (42). This removes power from the motor and the mechanism stops.

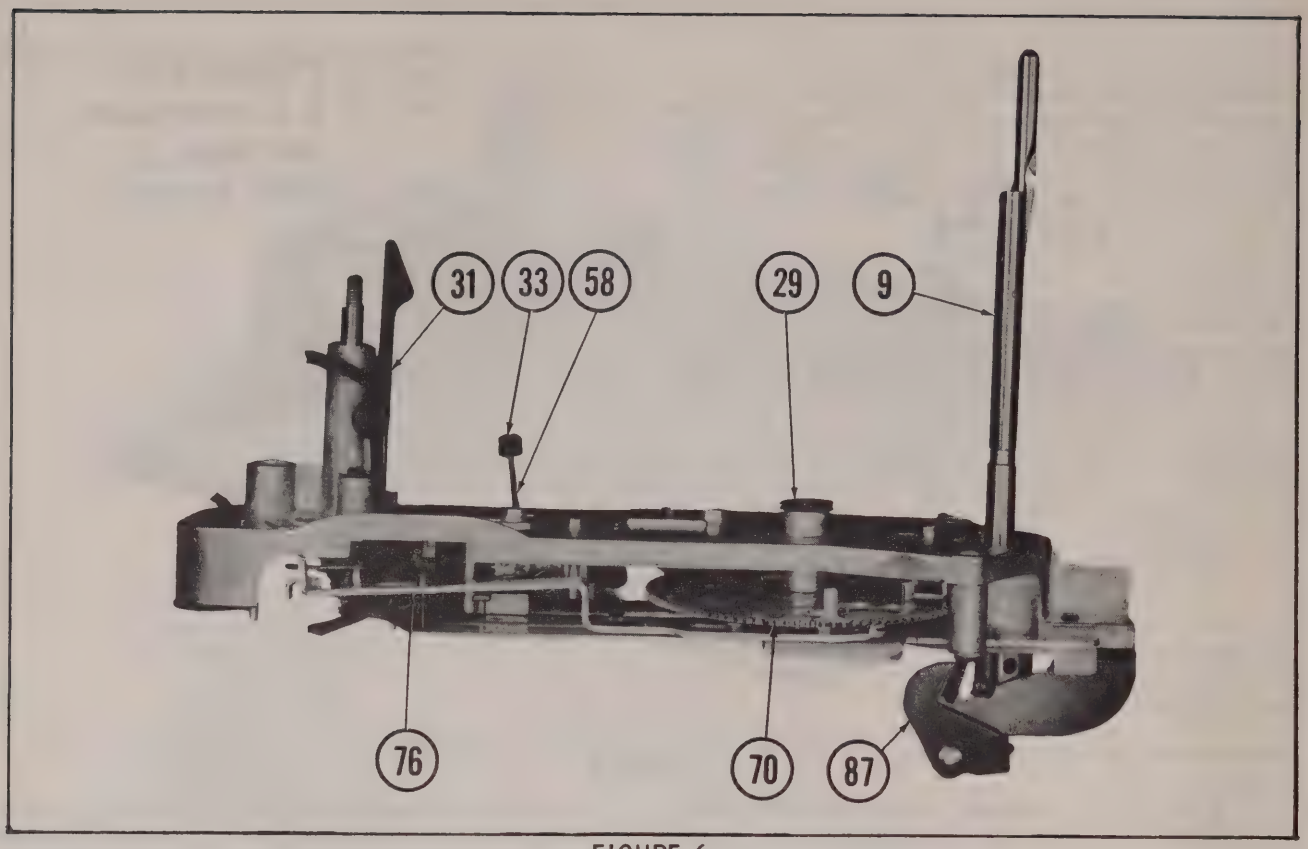


FIGURE 6

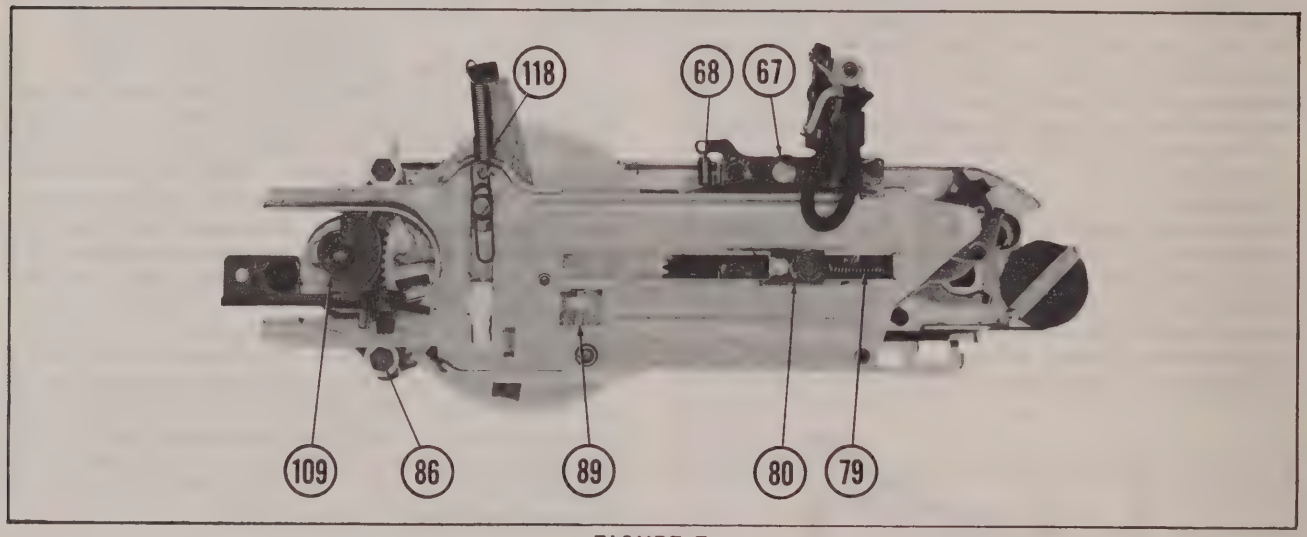


FIGURE 7

As the slide assembly moves to the out of cycle position, lift pin 19 rides down the incline and lowers the pick-up arm to the rest post (23).

LUBRICATION

Additional lubrication should not be required for the life of the changer, but in cases of unusual use or high operating temperature, the changer should be lubricated as follows: (Refer to the exploded view).

Apply Andok "B" or Texaco Sta-Put to:

1. Edges of all slots in slide assembly (78).

2. Outer edges of times on forked end of slide assembly (78).

3. Lift pin cam surface on slide assembly (78).

4. Lower surfaces of pick-up arm return locator (45).

5. Inner surface of tab on rear of slide assembly (78).

Apply a small quantity of light mineral oil to:

1. Trip finger cam shaft (49).

ADJUSTMENTS

Needle Set-Down (Refer To Figure 3)-

The set-down position of the needle is adjusted by means of the set-down adjustment screw (20A) mounted on the hinge arm assembly (20). Turn this screw adjusting pick-up arm for correct set-down on a 10" record. When the correct set-down is obtained for the 10" position, the 12" and the 7" needle set-down will also be correct.

Pick-Up Arm Height (Refer To Figure 3)-

The pickup arm height is adjusted by the lift screw (101). To raise the height of the pick-up arm, turn this screw counter clockwise. To lower the pick-up arm, turn clockwise. The pick-up arm height should be adjusted so that with a 1 1/8" stack of records on the turntable the pick-up arm lifts 1/4" straight up as the change cycle starts.

Needle Pressure (Refer To Figure 3)-

The needle pressure should be between 8 and 10 grams. Adjustment is made by placing weight adjusting spring (103) in the slots, on the underside of the pick-up arm, which give the desired pressure.

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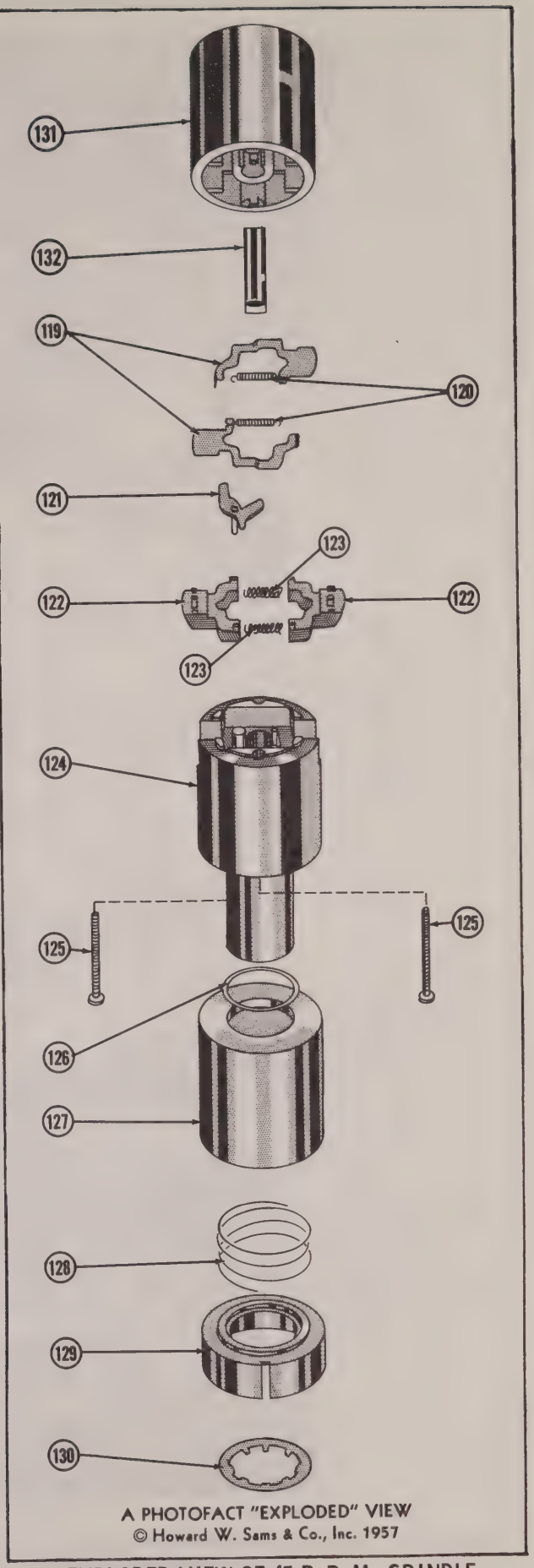

EXPLODED VIEW OF 45 R.P.M. SPINDLE

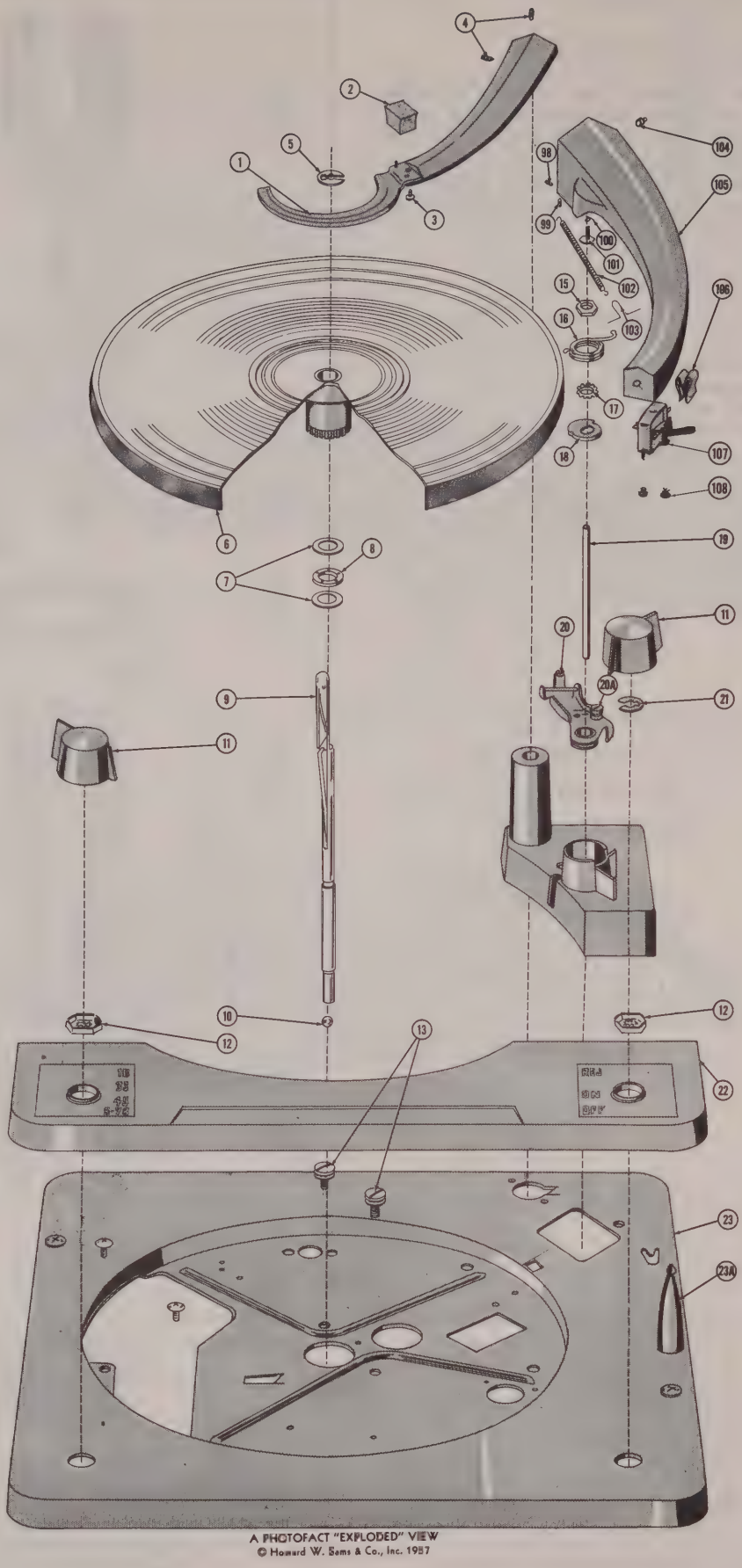

FIGURE 8A. EXPLODED VIEW OF PARTS ABOVE BASEPLATE.

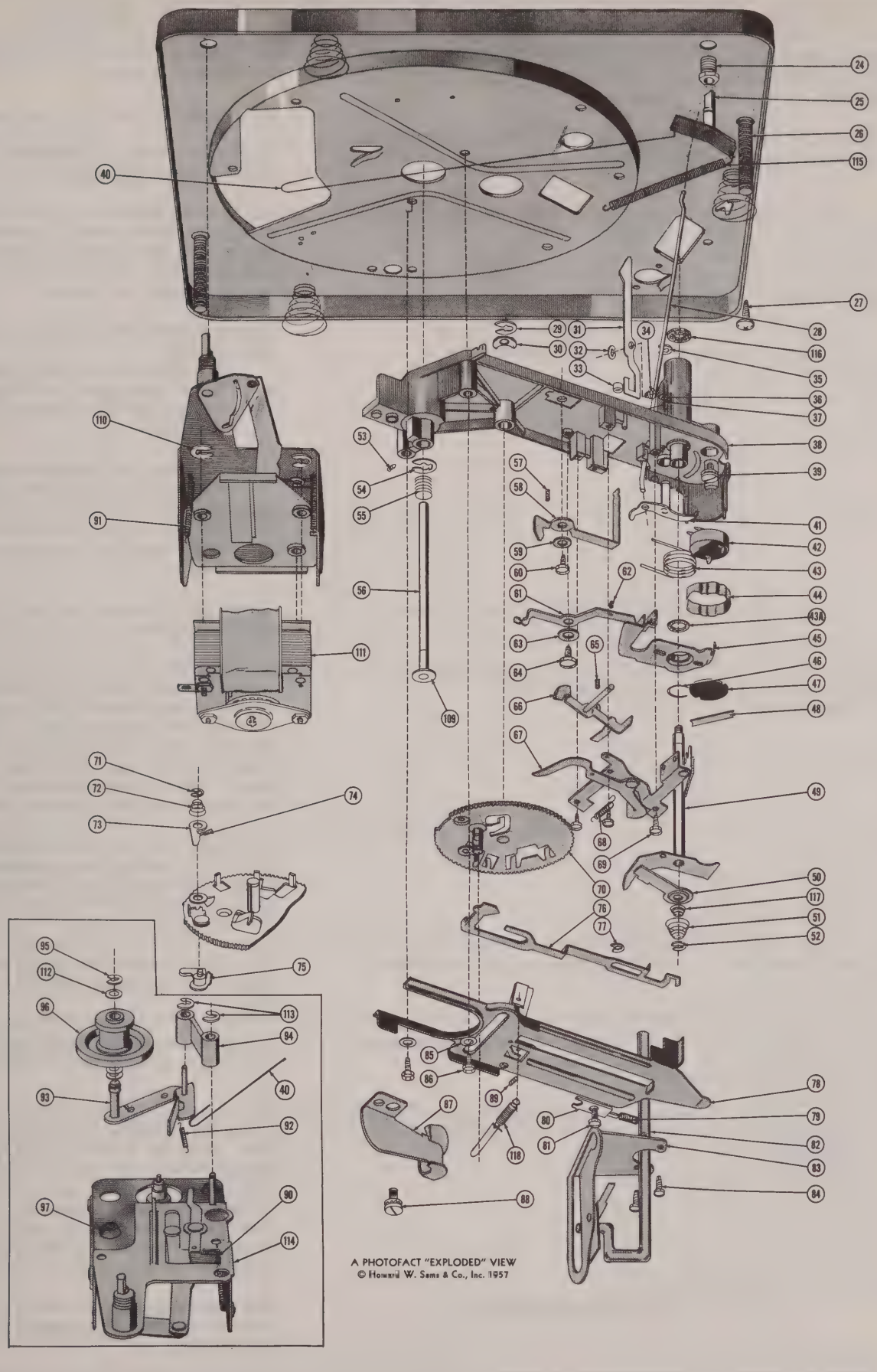

FIGURE 8B. EXPLODED VIEW OF PARTS BELOW BASEPLATE

TROUBLE CHART

SYMPTOM	CAUSE	REMEDY
Turntable does not revolve when control is turned "On".	1. No current at motor.	(a) Check that current is reaching AC leads of changer. (b) Check that switch is closing. (c) Check wiring and soldered terminals in the changer.
	2. Motor defective.	(a) Remove turntable to allow motor to operate without load. If current is reaching motor and drive spindle does not rotate, the motor is defective. Repair or replace.
	3. Motor idler wheel not engaging turntable rim.	If drive spindle is turning but turntable is not: (a) Check motor idler assembly to determine if it is free to contact the drive spindle and turntable rim. (b) Wipe off inside rim of the turntable (6) to remove flock, or if oily, clean the turntable rim and rubber tire of the idler wheel with naptha or alcohol.
	4. Motor not in detent completely.	Check speed change slide for freedom of operation.
Changer does not cycle when the control knob is turned to the "Rej".	1. The manual reject not actuating the trip.	(a) Turn the control knob (11) to the reject position, hold and see that the control shaft assembly (41) has moved the trip link (76) to the rear. This should actuate the trip pawl on the main gear (70) which will bring the spur on the trip pawl in contact with the hub gear on the turntable hub. (b) Check for binding of the pawl lever (73), the trip lever assembly (75) and the trip pawl. If binding occurs, clean out all foreign matter and check for freedom.
Control knob cannot be turned to "On" position.	1. Machine shut off during cycle.	Turn the turntable clockwise, by hand, until the control knob (11) is free.
Pickup arm strikes records on spindle when it raises, or pickup arm rest when it moves out.	1. Pickup arm height not adjusted properly.	(See instructions for adjusting pickup arm height under "Adjustments").
Turntable speed too slow (refer to exploded view).	1. Binding in turntable bearing.	Check the turntable bearing for freedom. Hold the motor idler wheel out of engagement with the turntable and spin the turntable, by hand, to see if it turns readily and coasts for a long time. If binding occurs, remove turntable, clean off foreign matter, and lubricate with light mineral oil.
	2. Line voltage too low.	The line voltage should not be less than 105 volts or the turntable may be too slow.
	3. Operating temperature too low.	If the machine has been stored in a cold place or operated in surround-

SYMPTOM	CAUSE	REMEDY
		ings at a temperature of less than 60° F., the turntable speed may be too slow.
Turntable stalls or slows down during cycle refer to exploded view.	1. Motor idler not engaging turntable.	(See "Turntable Does Not Revolve When Control Knob is Turned to "On" Position").
	2. Binding in drive mechanism.	Hold idler away from turntable, or remove idler wheel. Cycle machine by turning turntable slowly by hand. The main gear should turn freely for the complete revolution without binding at any point. (a) If binding occurs, check for foreign matter in the gear teeth, a bent gear bearing, or bent spindle bushing. Straighten or replace. Clean lubricate.
	3. Binding between pickup arm lift pin (19) and lift pin cam surface on slide and cam assembly.	Lift pin should ride freely on cam surface without binding.
	4. Motor weak.	When everything checks all right, but the changer still stalls in cycle, the motor may be weak.
	5. Grease on idler wheel.	1. Wipe off idler wheel rubber tire; inner rim of turntable and rubber belts with naptha or alcohol.
	6. Idler wheel tension spring weak.	Replace spring or bend motor tension spring anchor bracket to give desired tension.
Changer continues to cycle.	Reject mechanism binding.	(a) Make certain the trip link (76) is not frozen in the reject position. (b) Make certain the changer control lever (41) is not binding and that it actuates the trip link (71) when the changer control knob (11) is turned to reject. (c) Check for binding of trip pawl, trip lever (75) and pawl lever (73); these must be free to turn easily. (d) Check the changer control linkage, (28) and (41).
Noise during playing of record.	1. Motor rumble.	If a low-pitched rumbling sound comes from the loud speaker while a record is being played, check motor grommets to be sure the motor is freely suspended on them. The motor lead wires should have slack to allow the motor to float. Motor rumble may also come from an unbalanced motor rotor; in this case, replace the motor.
	2. Defective turntable bearings (8).	Defective turntable bearings can cause rumble. Check for foreign matter in the bearing, defective balls, binding between balls and

SYMPTOM	CAUSE	REMEDY
		ball retainer; rough surface on washers. Clean ball bearing, sleeve bearing, and washers; lubricate with light mineral oil.
	3. Defective motor idler wheel.	A rapid thumping sound while the motor is running may indicate a flat spot on the motor idler wheel. If this condition does not clear up after ten minutes of running time, remove the turntable and check the rubber tire on the idler. If the surface of the rubber tire is not smooth and even, replace the part. Should the bearing of the idler wheel show signs of excessive wear or be extremely wobbly, the idler wheel should be replaced.
	4. Defective record.	Worn or defective records cause needle scratch and distortion of the recorded sound. If the record is warped, it may slip on the other records causing "Wow" (a waver in the recorded sound). An enlarged hole in the record can also cause "Wow".
	5. Turntable scrapes.	If a scraping sound occurs as the turntable revolves, check: (a) Turntable warped, causing outer rim to rise and fall. (b) Motor idler or mounting plate bent.
	6. Squeaks.	Squeaking sound as changer operates indicates lack of oil. Lubricate points indicated under "Lubrication".
	7. 7" lever (58) loose.	Check 7" lever washer (59) and screw (60) to see if they are tight.
Distortion of recorded sound.	1. Defective record.	(See "Noise During Playing of Record").
	2. Defective amplifier.	Check phonograph amplifier and speaker.
	3. Bad cartridge.	Replace.
	4. Bad Needle.	Replace.
No Sound During Playing.	1. Defective cartridge.	Replace. (See "Defective Cartridges").
	2. Defective wiring.	Check pickup leads for a shorted or open lead.
	3. Defective amplifier.	Check phonograph amplifier and speaker.
	4. Loose cartridge terminal clips.	Remove, squeeze together slightly, and replace.
Excessive record wear.	1. Binding on pickup arm.	(See "Needle Does Not Track Across Record Properly").

TROUBLE CHART – CON'T.

SYMPTOM	CAUSE	REMEDY
Changer does not shut off after last record has been played (refer to exploded view).	1. Record support binding (1).	The record support must drop below the off-set shoulder of the spindle or the changer will not shut off. (See "Two Records Drop at Once").
	2. Lever assembly binding (66).	Clean out dirt and make sure this operates smoothly.
	3. Shut-off bracket binding.	Check bracket and if bent, straighten.
	4. Shut off lever not engaging locator.	Adjust tab on slide that rotates the locator and trip finger when unit is cycling.
Rough pickup arm motion.	1. Horizontal defects.	(a) Check pickup arm return locator (45) for tightness. (b) Check that pickup arm return spring (43) is not weak and is hooked up properly. (c) Check that fiber washer (43A) is installed under pickup arm return locator.
	2. Vertical defects.	(a) Lift pin (19) binding; clean out dirt and lubricate. (b) Slide and cam (78) binds; check bearing points -- clean and lubricate. (c) Burrs in main slot in slide and cam (78) -- remove with fine file. (d) Ejector lever on ejector bracket assembly (87) binding straighten, remove burrs, and lubricate. (e) Pickup arm shaft and sleeve binding; clean and lubricate.
Noisy during change cycle.	1. Tines on the forked end of the slide and cam assembly (78) bent.	Replace.
	2. Lack of lubrication. Grinding noise.	Lubricate ejector lever (87) where it contacts lower end of spindle (56).
Control knob does not detent on "33", "45", or "78" positions.	1. Detent spring off or broken.	Replace.
Cartridge drags on record.	Needle bent.	Replace needle.
	Cartridge mounting screws loose.	Tighten.
Shuts off when last record drops.	1. Shut-off bracket (83) bent.	Straighten or replace.
	2. Record support bent.	Bend down slightly so record support (1) is parallel with the baseplate.
	3. Loose shut-off lever assembly (66).	Tighten.
Will not play manually.	1. Trip link, (76) bent.	Straighten or replace.
	2. Trip finger cam (49) bent.	Straighten or replace.
Impossible to adjust set-down.	1. Pickup arm shaft and sleeve assembly (49) defective.	Shift the safety plate (18) toward the eccentric set-down adjusting screw

TROUBLE CHART — CON'T.

SYMPTOM	CAUSE	REMEDY
		(20A), and tighten pickup arm shaft and sleeve nut (15). Hold pickup arm against rear stop and push on trip finger cam (49). The safety plate (18) should move away from the set-down adjusting screw (20A) and snap back when the trip finger cam (49) is released; if it does not, replace the pickup arm shaft and sleeve assembly (49). Hinge pivot screws may be adjusted favoring one side or the other.
Record does not drop when changer cycles.	1. Spindle pusher shaft (56) broken, or bent.	Replace push shaft (56).
	2. Record finger in spindle not moving far enough forward to eject a record.	The record finger should move forward until it has reached a point flush with, or a maximum of, .010" beyond the spindle body (9). To insure that the record finger is all the way forward, push rod (56) should be raised high enough by the ejector lever to slightly compress the pusher spring. (See "Turntable Stalls During Cycle"). If the spring is compressed and the record finger does not move far enough forward to eject a record, the spindle (9) should be replaced. If a record is not pushed completely off the ledge it may hang on the spindle momentarily, then drop on the pickup arm when it moves in over the turntable.
	3. Check that ball bearing (10) is not missing.	Replace.
Two records drop at once.	1. Hole in record too large.	Check the diameter of the hole in the record. An oversize hole will cause two records to drop at once.
	2. Spindle guide not fully down.	If the spindle guide is not all the way down, more than one record may be dropped at a time. (a) Check the guide to be sure it is free and does not bind at any point. Clean out foreign matter of straighten if necessary. Do not oil. (b) When records are placed on the spindle, be sure the guide is all the way down. The guide will normally raise as a record is being dropped, but it should return to place immediately, by gravity.
	3. Record pusher (56) defective.	The record pusher (56) may be deformed, etc. This may cause two records to drop at once. Replace with new pusher or replace spindle assembly.
	4. Slight play in spindle (9).	Tighten spindle set screw (53).
Record hits pickup arm (refer to exploded view).	1. Record finger not moving far enough forward to eject record.	(See "Record Does not drop when changer cycles"-2).

TROUBLE CHART — CON'T.

SYMPTOM	CAUSE	REMEDY
	2. Record finger extending beyond outside diameter of spindle.	Cycle changer, by hand, until pusher shaft (56) is at the top of its travel. Using new record as a guage, pass it over the spindle to see if it binds at any point. File off high points on record finger with a fine file, until record will pass freely over spindle.
	3. Pickup arm not adjusted properly.	(See "Adjustments").
Needle does not set down on 10" record in proper position (refer to exploded view).	1. Pickup arm not adjusted properly.	(See "Adjustments"). (a) Loose nut (15) on pickup arm shaft and sleeve (49).
	2. Pickup arm shaft and sleeve (49) binding.	File off burrs and rough surfaces. Polish and lubricate shaft.
	3. 7" set-down lever (58) and 12" record selector (31) not operating properly.	Insure that the proper operation and reset of the 7" set-down lever (58) and 12" record selector (31) is not being interferred with.
	4. Needle bent.	Replace with new needle.
	5. Wire spring broken.	12" record selector (31) does not cock; check for broken 12" record selector spring (37).
	6. Bent pickup arm return locator (45).	Straighten or replace.
	7. Bent trip finger cam (49).	Straighten or replace.
Needle does not set down on 12" record in proper position (refer to exploded view).	1. Diameter of 12" record undersize.	The set-down position of the needle for 12" records is determined by the edge of the record striking the 12" record selector (31). If a 12" record has a diameter of less than the standard size of 11-7/8" plus or minus 1/32", it may fail to depress the 12" record selector far enough.
	2. Enlarged center hole in record.	An enlarged center hole might fail to set the 12" record selector because it could produce the same effect as a small record.
	3. Pickup arm not adjusted properly.	(See "Adjustments"). Page 8.
	4. Binding of pickup arm shaft and sleeve (49).	Clean and polish shaft (49) and lubricate with light oil.

MECHANICAL PARTS LIST

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
	6000-A	Record Support Ass'y. (Complete)	10	6884	Ball Bearing
		Consists of:	11	6918-A10	Control Knob
1	6932-A	Record Support	12	2257	Pal Nut
2	6864-A10	Knob	13	101	Screw — #10-24 x 3/8 Sems B.H.
3	6927	#4 x 1/4 Flat Hd. Screw	14	6929	Screw — #8-32 x 3/16 B.H.M.S.
4	6928	Set Screws	15	3887	Jam Nut — #1/4 x 28
5	1650	"C" Washer (Turntable Retainer)	16	4937	Safety Spring
6	6958-A	Turntable Assembly	17	3888	Lockwasher
7	6877	Bearing Washers	18	4339	Safety Plate
8	6976	Ball Bearing Retainer	19	4327	Lift Pin
9	6049	Spindle Shaft	20	4072	Hinge Arm Assembly

MECHANICAL PARTS LIST (CON'T.)

Ref. No.	Part No.	Description
20A		Set-Down Adj. Screw (Part of Item 20)
21	1719	"C" Washer
22	6920-C	Escutcheon
23	6935-CM	Baseplate Assembly
23A	5573-A31	Rest Post
24	6916	Control Bushing
25	7114	Control Lever
26	6456	Mounting Bolt
27	2916	Screw (Rest Post Mtg.)
28	6919	Reject Rod
29	1719	"C" Washer – Main Gear Ass'y.
30	9762	Washer (Spring)
31	2957	12" Record Selector
32	1588	"C" Washer
33	2580	Rubber Bumper
34	4172	Compression Spring
35	1652	"C" Washer
36	1720	Speed Nut
37	2563	Spring – 12" Record Selector
38	6968	Die-Cast Frame
39	101	Screw – #10-24 x 5/16
40	7112	Retraction Rod
41	2284	Control Shaft Assembly
42	467	Switch
43	9533	Return Spring – Pickup Arm
43A	4950	Fibre Washer
44	2931	Fibre Insulating Strip
45	6405	Locator and Bushing Assembly
46	5828	Retaining Ring – Locator Plate
47	2573	Switch Cover
48	4212	Retainer – Switch Cover
49	9565	Trip Finger Cam & Shaft Ass'y.
50	9557	Retard Lever
51	9509	Lift Pin Spring
52	1588	"C" Washer
53	6955	Set Screw – #8-32 x 1/4
54	5022	"C" Washer
55	6885	Safety Spring
56	6874	Push Rod
57	2579	Spring – 7" Set-Down Lever
58	2581	7" Set-Down Lever
59	2274	Flat Washer – 7" Set-Down Lever
60	4856	Screw – #6-32 x 1/4
61	6007	Reset Lever
62	2925	Spring – Reset Lever
63	492	Flat Washer – Reset Lever
64	4856	Screw – #6-32 x 1/4
65	9663	Spring – Shut-Off Lever
66	6966	Shut-Off Lever Assembly
67	9786	Retard & Clip Assembly
68	6880	Spring – Retard Arm
69	6713	Screw – #4-40 Hex. Hd.
70	7125	Gear Assembly
71	1588	"C" Washer
72	4172	Spring
73	5339	Pawl Lever
74	5338	Pawl Spring
75	2569	Trip Lever Assembly
76	4656	Trip Link
77	1588	"C" Washer
78	7121	Slide Assembly
79	2246	Spring – Slide Bearing
80	2211	Slide Bearing
81	4856	Screw – #6-32 x 1/2
82	6897	Record Support Shaft
83	6931	Record Support Guide Assembly
84	4857	Screw – #6-32 x 3/8
85	2274	Flat Washer
86	4856	Screw – #6-32 x 1/4
87	6953	Ejector Bracket Assembly
88	101	Screw – #10-24 x 5/16
89	2585	Spring – Escape Lever
	6950	Motor Ass'y. Complete, 110V., 60C., – 2 Pole
		Consists of:
90	6947	Detent Spring
91	6948	Counter Balance Spring
92	6949	Idler Spring
93	6937	Idler Arm Assembly
94	6901	Idler Link
95	1652	"C" Washer
96	9092	Idler Pulley
97	6631	Motor Mtg. Grommet
	14321-AY	Tone Arm & Hinge Ass'y., Consists of:
98	4923	Pivot Screw
99	6001	Pivot Lock Screw
100	7634	Lock Spring
101	7635	Lift Screw
102	6924	Hinge Spring
103	6965	Weight Adj. Spring
104	4922	Hinge Pivot Button
105	7488-AY	Tone Arm
106	6963	Tone Arm Clip
107	7316	Cartridge (Sonotone 9980)
108	9074	Screw – #2-56 x 1/8 Phillips Fillister Head
109	6883	Thrust Washer
110	5022	"C" Washer
111	6945	Motor
112	2583	Fibre Washer
113	1652	"C" Washer
114	6944	Motor Plate Assembly
115	7113	Reject Spring
116	2952	Fibre Washer
117	9510	Anti-Skate Spring
118	7120	Detent Spring & Link Assembly
	6100	45 R. P. M. Spindle - New Type
		Consists of:
119		6089 Separator Blade
120		6093 Bolt Return Spring
121		6102 Actuator Lever Assy.
122		6088 Bolt
123		6093 Bolt Return Spring
124		6087 Spindle
125		5245 Screw, 4-40 x 7/8 Fil. Hd. M.S.
126		6094 Fibre Washer
127		6096 Rotor
128		5068 Spring-Rotor Lift
129		6095 Rotor Lift
130		6099 Retainer
131		6104-A4 Spindle Cap.
132		6097 Spindle Clamp

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ZENITH MODELS
Z508B, L, V (Ch. 5Z05)

ZENITH MODELS
Z508B, L, V (Ch. 5Z05)

TRADE NAME	Zenith Models Z508B, Z508L, Z508V (Ch. 5Z05)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Avenue, Chicago 39, Illinois
TYPE SET	AC-DC Operated AM Receiver
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier.
POWER SUPPLY	110-120 Volts AC-DC — RATING .31 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	535KC - 1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to B-.	455KC (400~ Mod.)	600KC	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001 MFD to reduce hum modulation.
2.		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A6	"

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PARTS LIST AND DESCRIPTIONS

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amp.	12AT6	

ITEM No.	USE	TYPE	NOTES
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	60	150	22-2589	PRS150V40-2020	BBRT42215	TCT3114	TDLT-2	FMT-310	TVA-3444
B	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C3	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C4	470		22-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C5	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C6	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C7	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C8	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	1Meg	½	63-3651	B-69	A47-1Meg-S	Q11-137	U54	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	
C	Switch			KB-1	SWE-12	76-1	US-26	

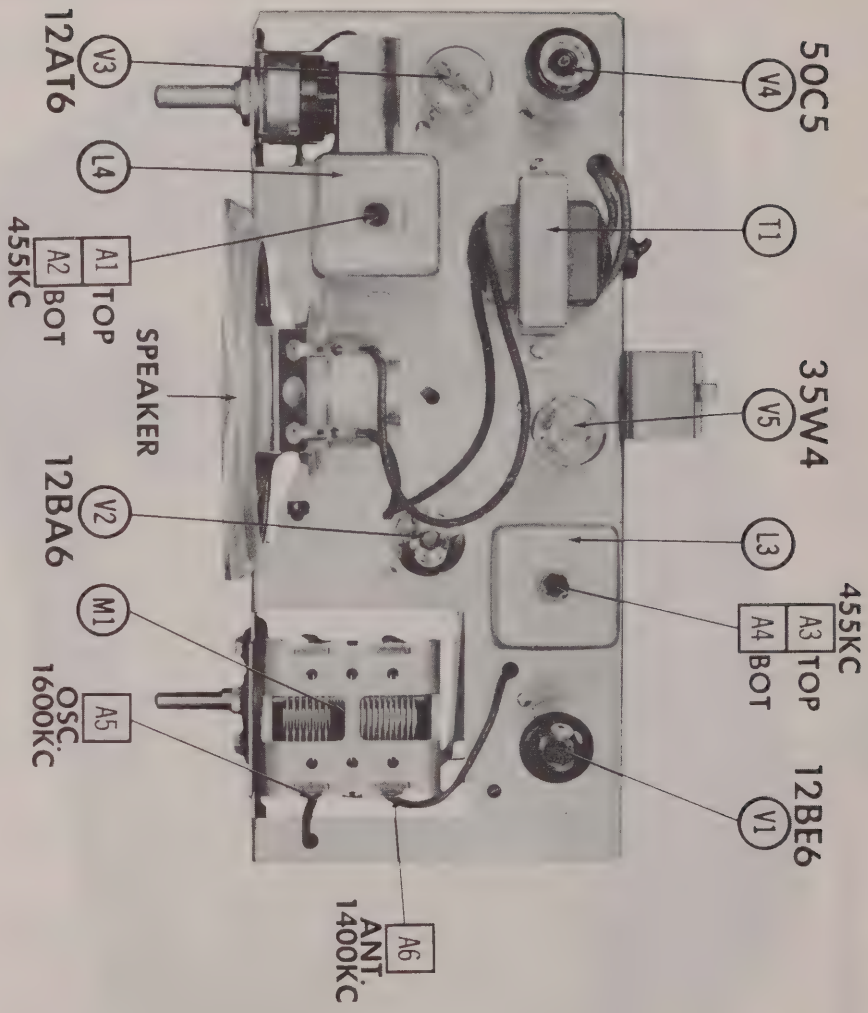
RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R2	22K			BTS-22K	
R3	2.2Meg			BTS-2.2Meg	
R4	4.7Meg			BTS-4.7Meg	
R5	470K			BTS-470K	

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R6	470K			BTS-470K	
R7	150Ω			BTS-150	
R8	1000Ω	1	63-1574	BTA-1000	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2300Ω	3-4Ω	95-1396	Z1101	A-3025	A-3332	26S58	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	49-646	3A07	

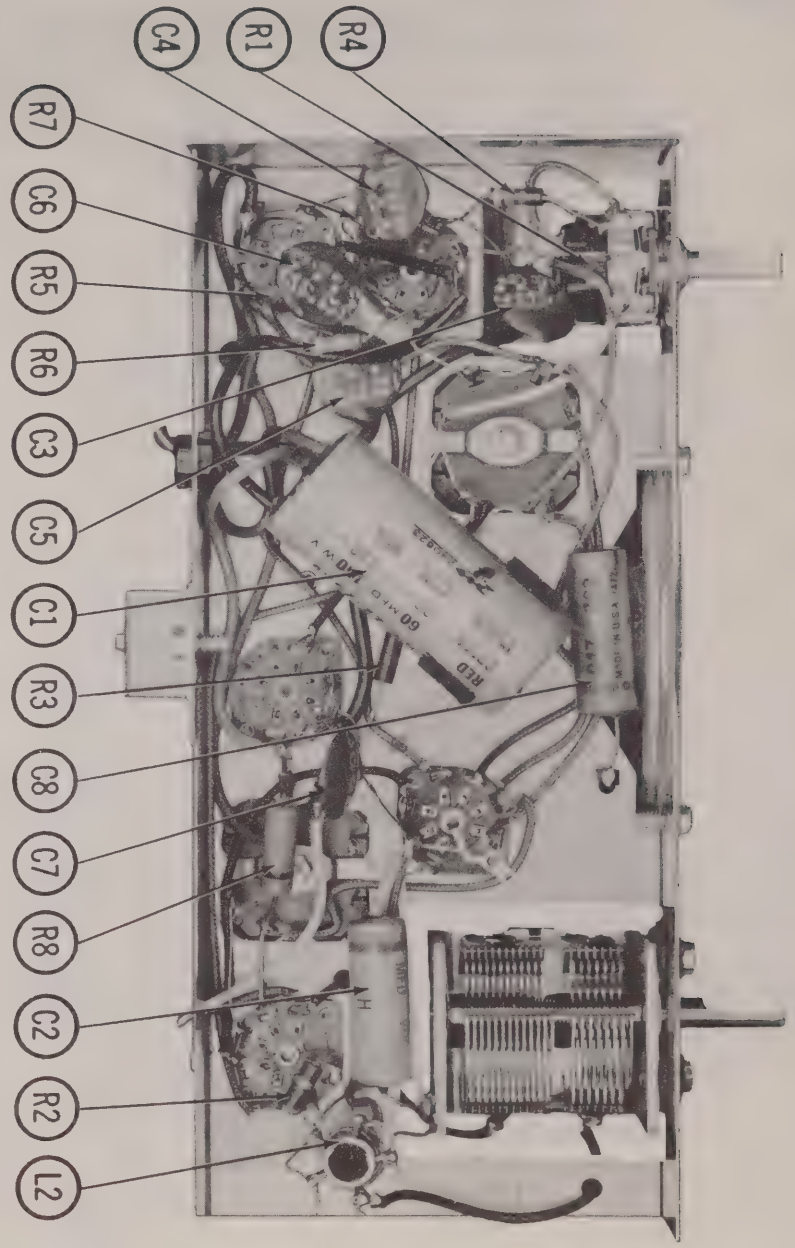
COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	S-24473				181 Microhenries
L2	Osc. Coil	S-24471				
L3	Input IF	95-1101	16-6666	BC-368	012-C1	
L4	Output IF	95-1102	16-6770*	BC-355*	12-C6*	*Use adaptor plate

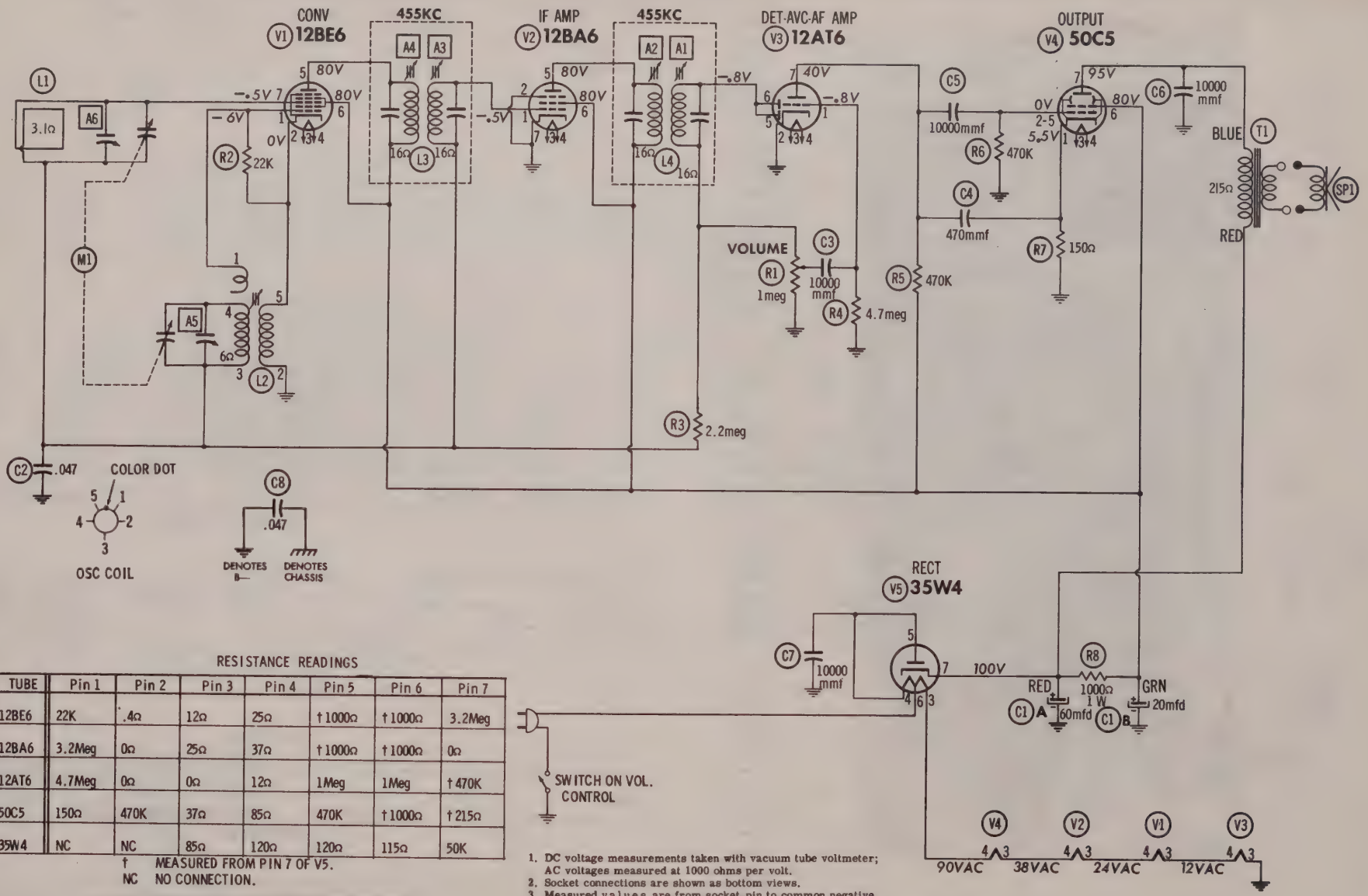
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M1	Tuning Cap	22-2873	Two Gang (18-350MMF, 18-115MMF)
	Knob	46-1528	Tuning, Model Z508B
	Knob	46-1527	Tuning, Model Z508L
	Knob	46-1526	Tuning, Model Z508V
	Knob	46-1531	On-Off, Vol., Model Z508B
	Knob	46-1530	On-Off, Vol., Model Z508L
	Knob	46-1529	On-Off, Vol., Model Z508V
	Cabinet	S-24480	Model Z508B
	Cabinet	S-24478	Model Z508L
	Cabinet	S-24476	Model Z508V

CHASSIS—BOTTOM VIEW



ZENITH
MODEL Z508B (Ch. 5Z05)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	.4Ω	12Ω	25Ω	†1000Ω	†1000Ω	3.2Meg
V2	12BA6	3.2Meg	0Ω	25Ω	37Ω	†1000Ω	†1000Ω	0Ω
V3	12AT6	4.7Meg	0Ω	0Ω	12Ω	1Meg	1Meg	†470K
V4	50C5	150Ω	470K	37Ω	85Ω	470K	†1000Ω	†215Ω
V5	35W4	NC	NC	85Ω	120Ω	120Ω	115Ω	50K

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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353-17

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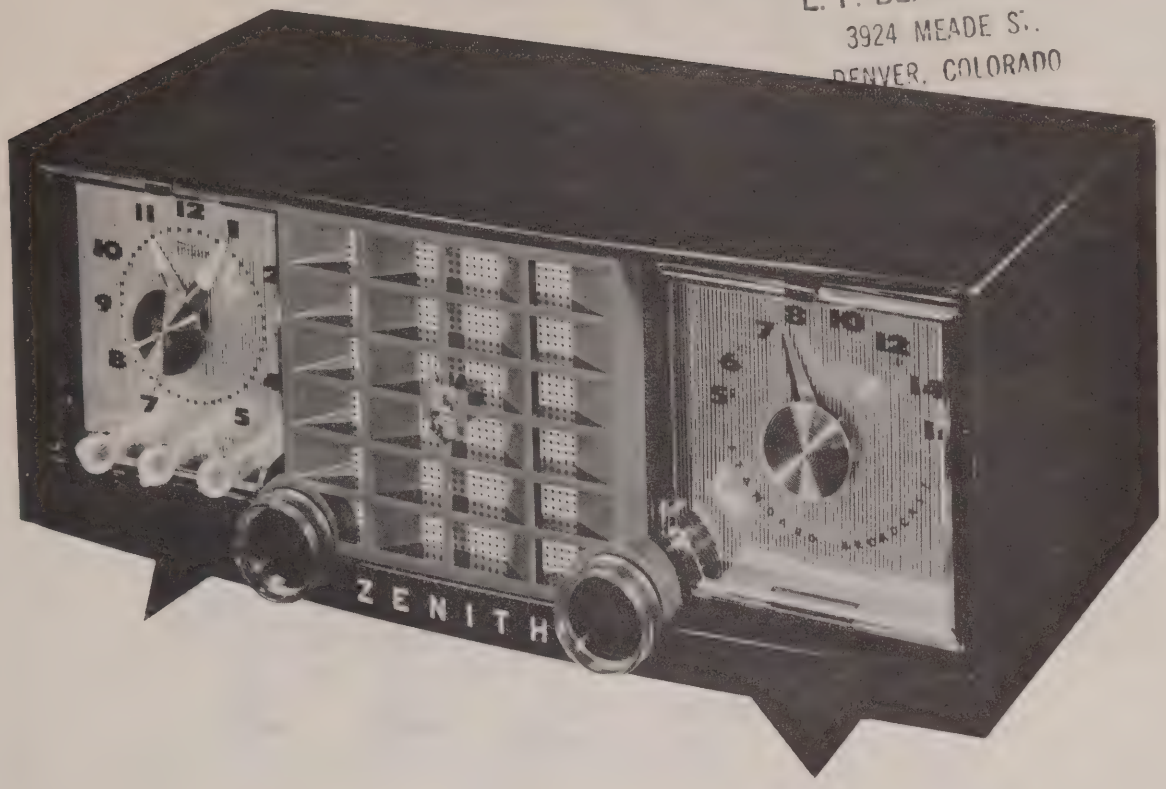
ZENITH MODEL
Z519 (Ch. 5Z07)



ZENITH MODEL
Z519 (Ch. 5Z07)

TRADE NAME	Zenith Models Z519P, Z519R, Z519V, Z519W, Z519Y (Ch. 5Z07)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.
TYPE SET	AC Operated AM Receiver With Electric Clock
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det.-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC-60 Cycles — RATING .31 Amp. @ 117 Volts AC (27 Watts Without Clock)
TUNING RANGE—BROADCAST	535KC-1620KC

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Loop should be maintained in same relative position to chassis as when receiver is in cabinet.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.
To set pointer, turn tuning capacitor fully closed and set pointer to last reference mark at low frequency end of dial.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5MFD	High side to pin 7 (grid) of 12BE6 (V1) Low side to B-.	455KC (400~ Mod.)	600KC	Across voice coil.	A1, A2 A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A6	"

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PARTS LIST AND DESCRIPTIONS

ZENITH
MODEL Z519P (Ch. 5Z07)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det. -AVC-AF Amplifier	12AT6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■ 80	150	22-2351	AFH2-19	XB0181	FP216	TMD-16	D-085	TVL-3440
B	▲ 40	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING		REPLACEMENT DATA							NOTES
	CAP.	VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	
C2	100		22-5	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C3	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C4	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C5	470		22-6	BPD-00047	DD-471	BYA10T47	ED-470	UC-5347	5GA-T47	
C6	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC-511	5HK-S1	
C7	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC-511	5HK-S1	
C8	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC-511	5HK-S1	
C9	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	
R1A	500K	½	63-2826	B-59	A47-500K-S	Q11-133	U48	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R2	22K		63-1842	BTS-22K	Note 1
R3	100Ω			BTS-100	
R4	2.2Meg		63-1926	BTS-2.2Meg	
R5	4.7Meg		63-1940	BTS-4.7Meg	

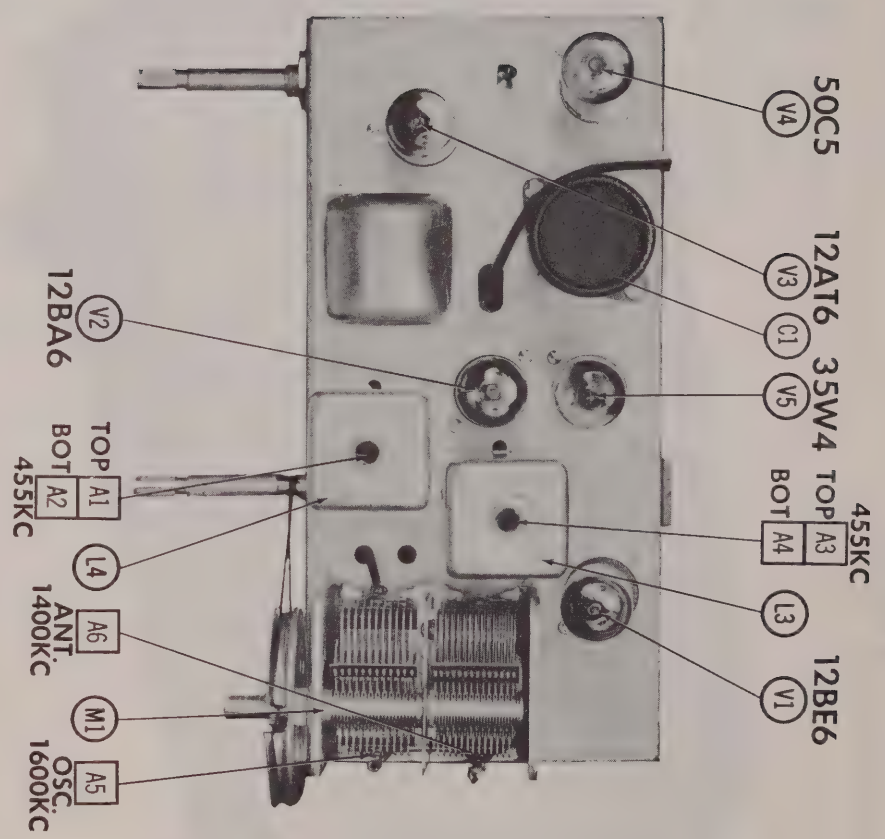
ITEM No.	RATING		REPLACEMENT DATA		NOTES
	OHMS	WATT	ZENITH PART No.	IRC PART No.	
R6	470K		63-1898	BTS-470K	
R7	470K		63-1898	BTS-470K	
R8	150Ω		63-1750	BTS-150	
R9	1000Ω	1	63-965	BTA-1000	

Note #1. 68Ω used in some versions (Part No. 63-1737).

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2300Ω Tapped	3-4Ω	95-1354	Z1102 ①	A-3031 ①	A-3330 ①	24S50A ①	S-16X ①	① Drill new mtg. hole.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	49-713	4A07	

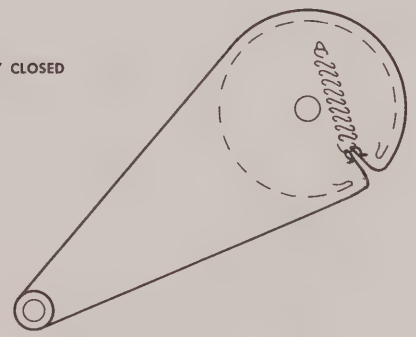
COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Ant.	S-21634				Includes Cabinet Back
L2	Osc. Coil	S-20686				
L3	Input IF	95-1101	16-6666	BC-368	012-C1	
L4	Output IF	95-1102	16-6770*	BC-355*	12-C6*	* Use Adaptor Plate

MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M1	Tuning Cap	22-2583	2 Gang (25-470MMF, 26-170MMF)
M2	Clock	S-40564	
	Crystal	192-208	Radio
	Crystal	192-210	Clock
	Pointer	59-304	Dial
	Knobs	46-1312	Auto-On-Off, Radio, Alarm Set
	Knobs	46-1307	Volume & Tuning
	Cabinet	14-2116	Model Z519R
	Cabinet	14-2117	Model Z519W
	Cabinet	14-2118	Model Z519Y
	Cabinet	14-2119	Model Z519P
	Cabinet	14-2120	Model Z519V

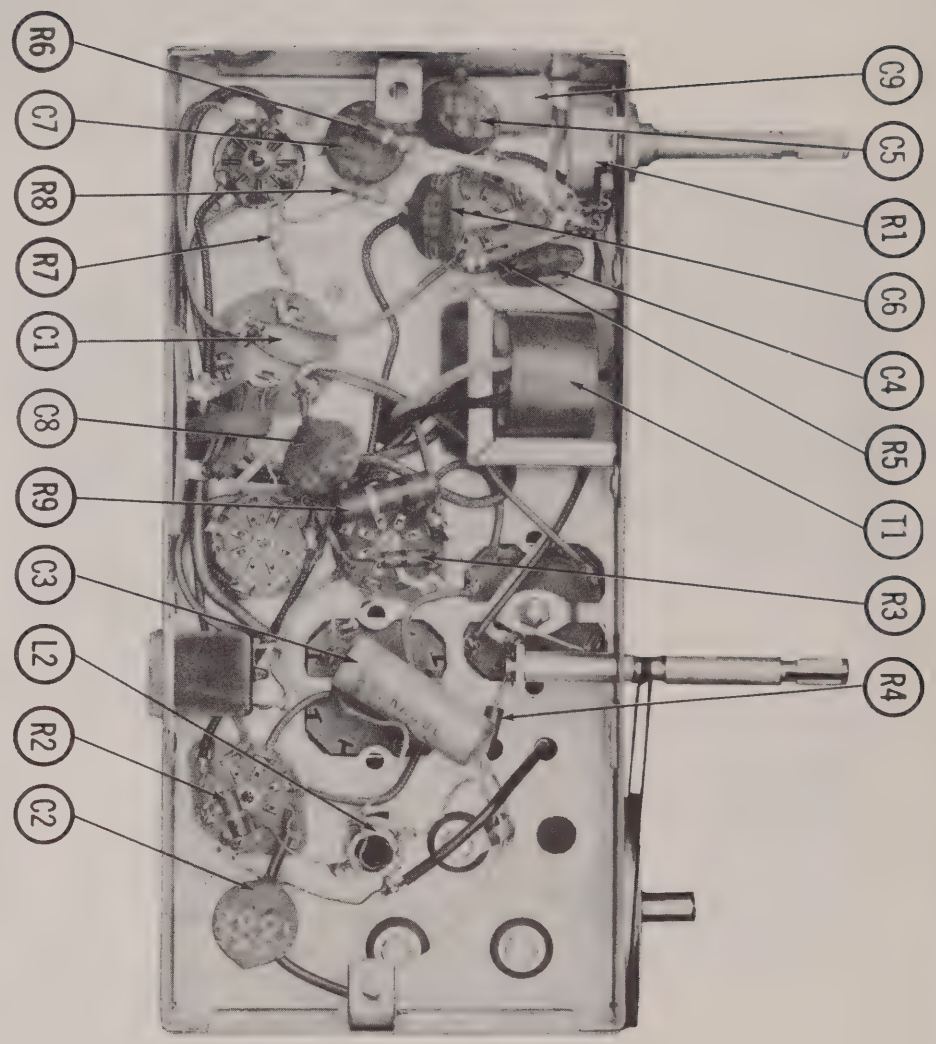
TUNING GANG FULLY CLOSED



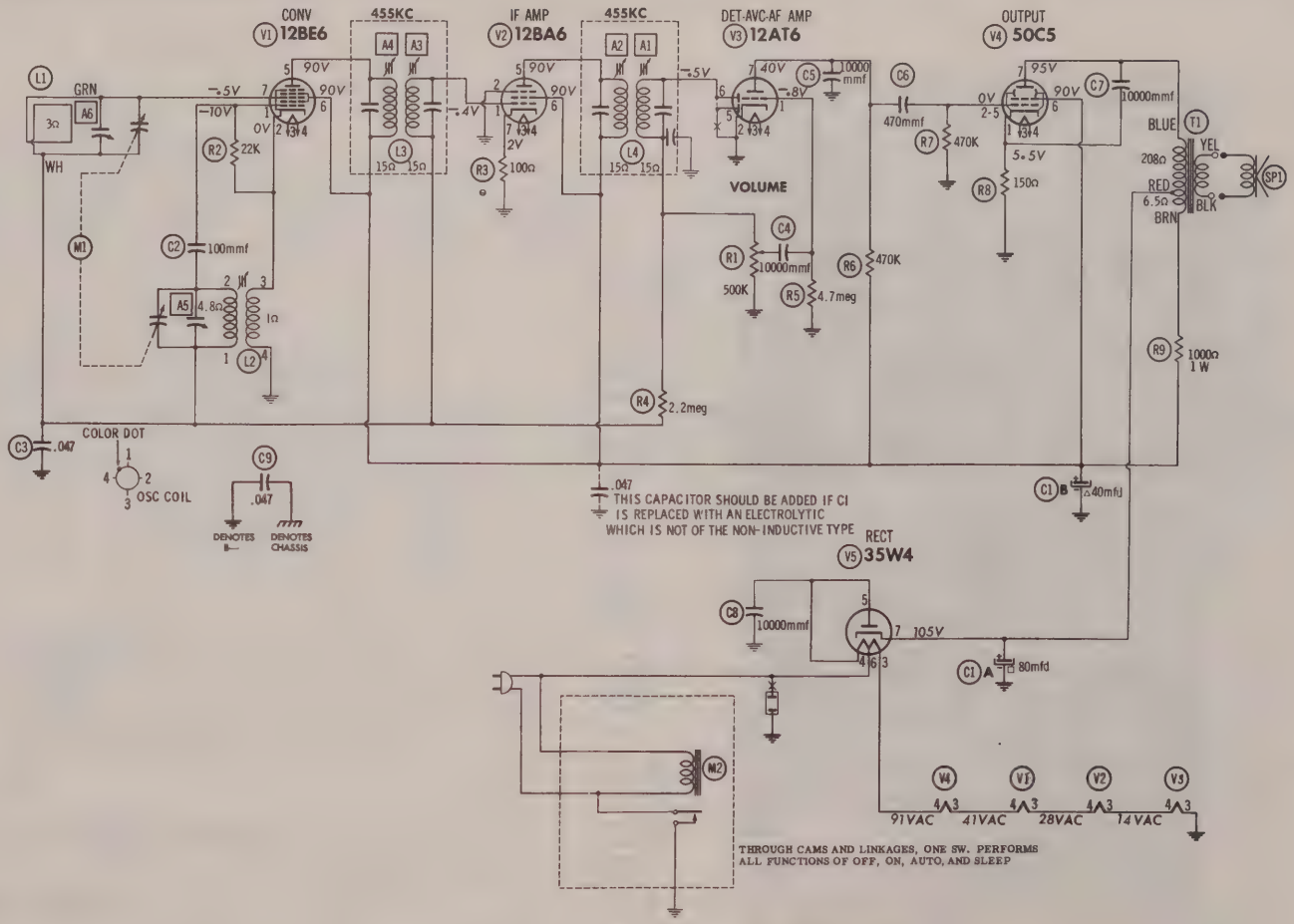
2½ TURNS

DIAL CORD STRINGING

CHASSIS—BOTTOM VIEW



ZENITH
MODEL Z519P (Ch. 5Z07)



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to commom negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	22K	1Ω	25Ω	35Ω	†1000Ω	†1000Ω	2.7Meg
V2	12BA6	2.7Meg	0Ω	12Ω	25Ω	†1000Ω	†1000Ω	100Ω
V3	12AT6	4.7Meg	0Ω	0Ω	12Ω	0Ω	500K	†470K
V4	50C5	150Ω	470K	35Ω	85Ω	470K	†1000Ω	†210Ω
V5	35W4	TP	NC	85Ω	120Ω	120Ω	115Ω	50K

† MEASURED FROM PIN 7 OF V5.
NC NO CONNECTION.
TP TIE POINT.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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PROPERTY OF
L. F. BLANKENSHIP
3924 MEADE ST.
DENVER, COLORADO

ZENITH MODEL
Z550G (Ch. 5Z08)

ZENITH MODEL
Z550G (Ch. 5Z08)

TRADE NAME	Zenith Model Z550G (Ch. 5Z08)
MANUFACTURER	Zenith Radio Corp., 6001 Dickens Ave., Chicago 39, Ill.
TYPE SET	AC Operated AM Receiver With 4 Speed Automatic Record Changer
TUBES (Five)	Types 12BE6 Converter, 12BA6 IF Amplifier, 12AT6 Det-AVC-AF Amp., 50C5 Output, 35W4 Rectifier
POWER SUPPLY	110-120 Volts AC - 60 Cycles — RATING .31 Amp. @ 117 Volts AC
TUNING RANGE—BROADCAST	535KC - 1620KC — SHORT WAVE

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading. Use an insulated alignment screwdriver for adjusting.
Use isolation transformer, if available. If not, connect a .1MFD capacitor in series with low side of signal generator and B-.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	.5MFD	High side to pin 7 (grid) of 12BE6 (V1). Low side to chassis.	455KC (400~ Mod)	600KC	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output. If isolation transformer is not used, reduce dummy antenna to .001MFD to reduce hum modulation.
2.		Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.		"	1400KC	1400KC	"	A6	"

FOR SERVICE INFORMATION ON RECORD CHANGER S-14072 - SEE SIMILAR V-M MODEL V-M-1200 -- PHOTOFACT SET 290 FOLDER 11 OR RECORD CHANGER MANUAL CM-7.

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G812

PARTS LIST AND DESCRIPTIONS

ZENITH
MODEL Z550G (Ch. 5Z08)

TUBES (GENERAL ELECTRIC, SYLVANIA)

ITEM No.	USE	TYPE	NOTES
V1	Converter	12BE6	
V2	IF Amplifier	12BA6	
V3	Det-AVC-AF Amp.	12AT6	
V4	Output	50C5	
V5	Rectifier	35W4	

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	ZENITH PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SANGAMO PART No.	SPRAGUE PART No.
C1A	■80	150	22-2272	AFH3-13	C0120	FP216	TMT-13	T-055	TVL-3444
B	▲40	150				TC45			
C	20	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING CAP.	RATING VOLT	ZENITH PART No.	AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ERIE PART No.	MALLORY PART No.	SPRAGUE PART No.	NOTES
C2	100		22-5	BPD-0001	DD-101	L10T1	ED-100	UC-531	5GA-T1	
C3	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C4	3300		22-11	BPD-0033	D6-332	BYA10D33	GP-3300	UC-5233	5HK-D33	
C5	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C6	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C7	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	
C8	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C9	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C10	4700		22-4	BPD-0047	DD-472	BYA10D47	GP-4700	UC-5247	5HK-D47	
C11	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C12	470	1000	22-6	HVD-15-470		BYA10T47		DC30347	10GAB-T47	
C13	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C14	.1	200	22-2783	P288N-1	DF-104	CUB2P1		GEM-401	2TM-P1	
C15	.01	400	22-2811	BPD-01	DD-103	CUB4S1		GEM-411	4TM-S1	
C16	10000		22-3	BPD-01	DD-103	BYA6S1	GP-10000	DC511	5HK-S1	
C17	.047	200	22-2792	BPD-05	DF-503	CUB2S47		GEM-4147	2TM-S47	

CONTROLS

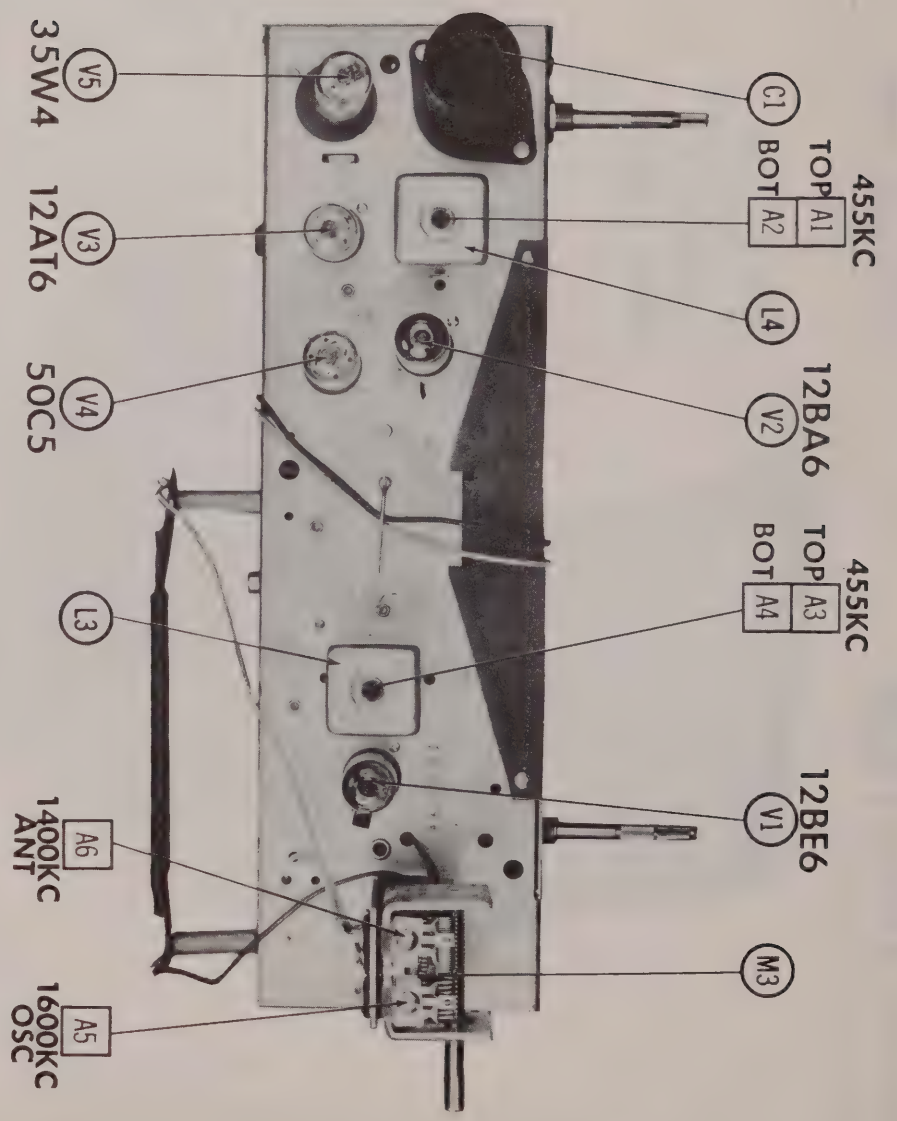
ITEM No.	RATING RESISTANCE	RATING WATTS	ZENITH PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K	½-1	63-3662				UF55L	Tone
B	500K						UR55L	Volume
C	Switch						US-26	

RESISTORS

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING OHMS	RATING WATT	ZENITH PART No.	IRC PART No.	NOTES
R2	10K		63-1828	BTS-10K	
R3	15Meg		63-1961	BTS-15Meg	
R4	330K		63-1891	BTS-330K	
R5	4.7Meg		63-1940	BTS-4.7Meg	
R6	120Ω		63-1747	BTS-120	
R7	180K		63-1880	BTS-180K	
R8	2.2Meg		63-1926	BTS-2.2Meg	
R9	10K		63-1828	BTS-10K	
R10	4.7Meg		63-1940	BTS-4.7Meg	
R11	470K		63-1898	BTS-470K	
R12	820Ω		63-1782	BTS-820	
R13	470K		63-1898	BTS-470K	
R14	1000Ω	1	63-965	BTA-1000	
R15	150Ω	1	63-1977	BTA-150	
R16	3300Ω		63-1807	BTS-3300	
R17	1500Ω		63-1793	BTS-1500	

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA						NOTES
	PRI.	SEC.	ZENITH PART No.	Halldorson PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2500Ω tapped	3-4Ω	95-1495	Z1103 ①	A-3031 ①	A-3336 ①	24S50A①	S-16X ①	① Drill one new mtg. hole.

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	ZENITH PART No.	QUAM PART No.	
SP1	5 1/4"	PM	3-4Ω	49-791	52A1	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		ZENITH PART No.	MEISSNER PART No.	MERIT PART No.	MILLER PART No.	
L1	Loop Stick	S-24659				204 Microhenries
L2	Osc. Coil	S-24654				194 Microhenries
L3	1st IF Coil	95-1101	16-6666	BC-368	12-C1	
L4	2nd IF Coil	95-1102	16-6770*	BC-355*	12-C6*	*Use adapter plate.

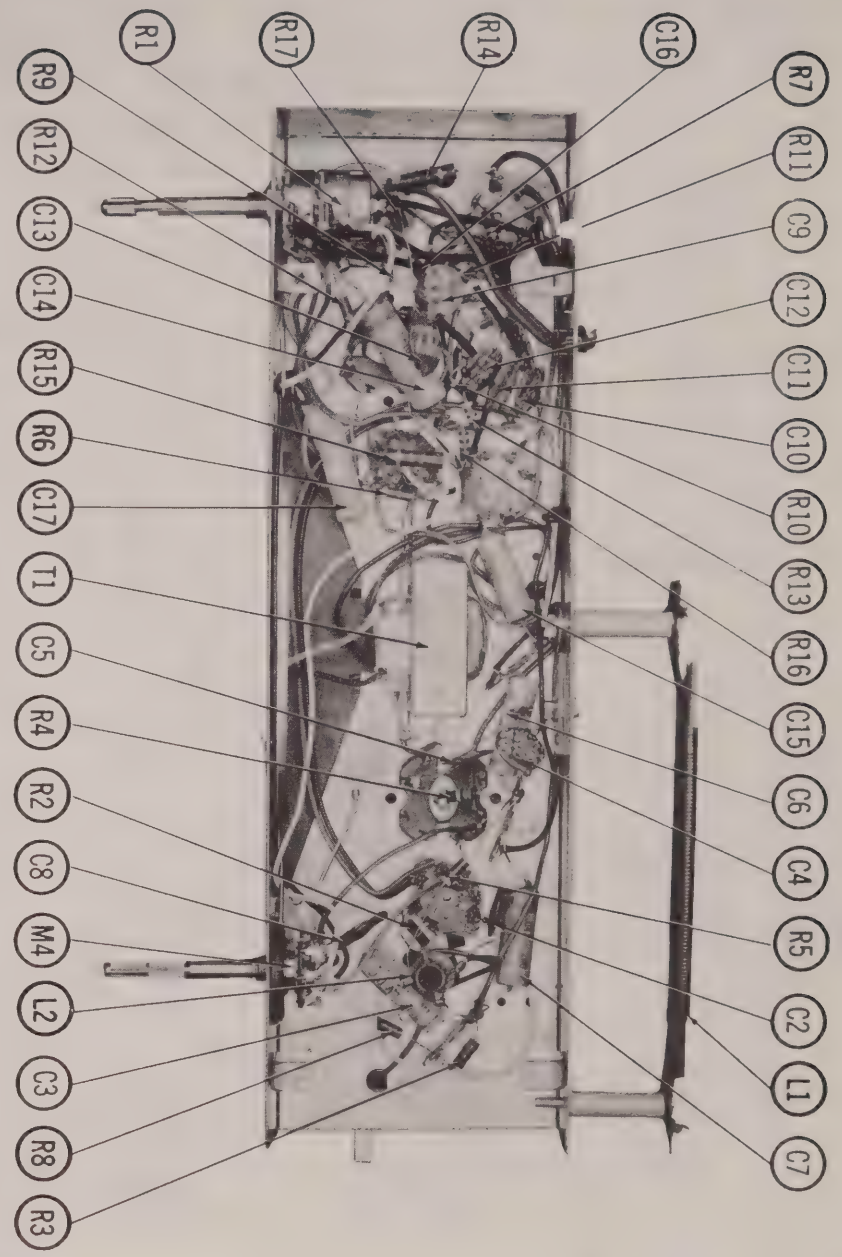
PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA					REMARKS
	ZENITH PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		
		CARTRIDGE	NEEDLE	CARTRIDGE	MOUNT	
M1	142-80			56	*PT-2	*Not required unless original mounting bracket is damaged.

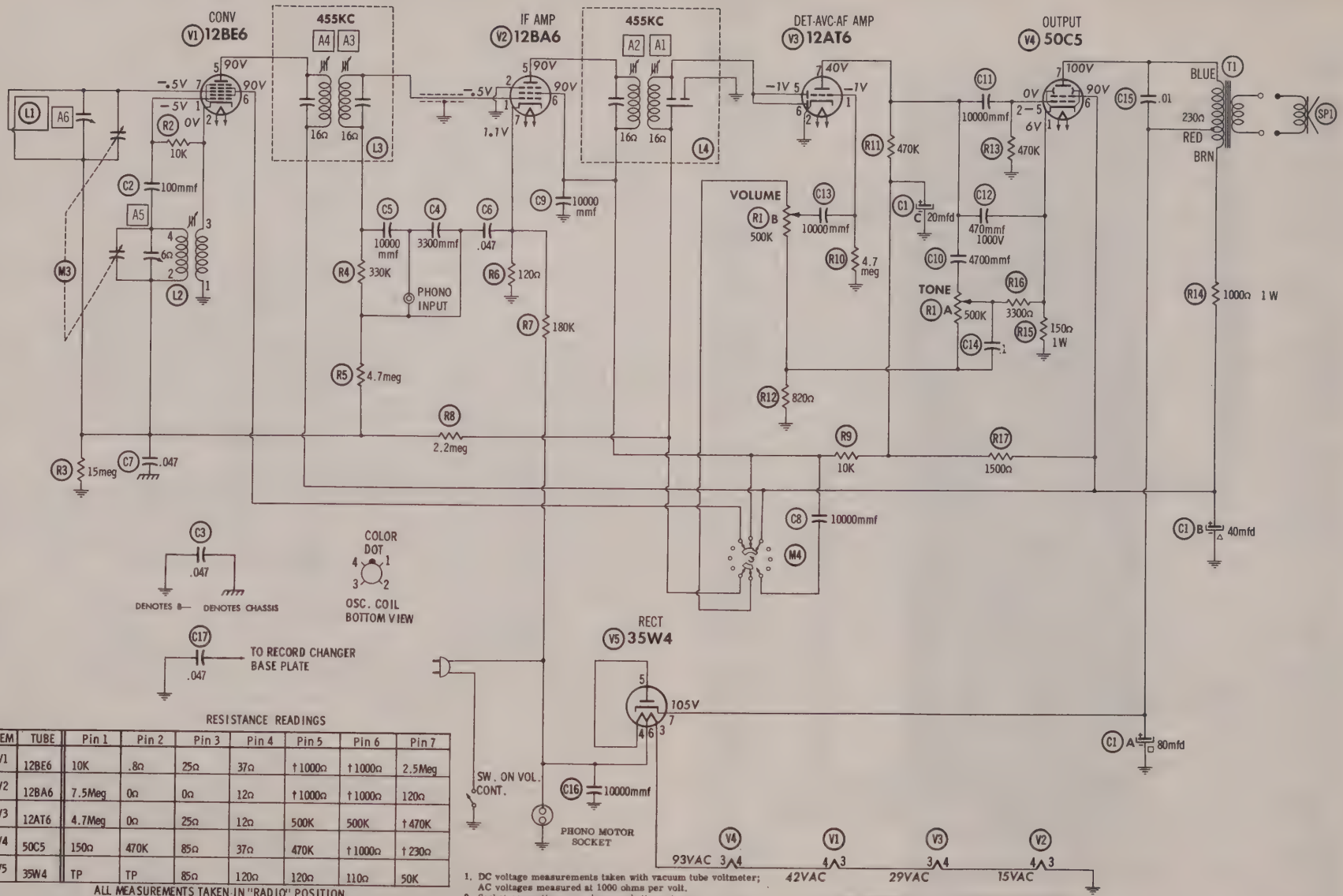
MISCELLANEOUS

ITEM No.	PART NAME	ZENITH PART No.	NOTES
M3	Tuning Cap.	22-2887	Two Gang (24-356MMF, 27-120MMF)
M4	Switch	85-579	Radio, Phono (Rotary, Wafer Type)
	Knob	46-1318	Volume
	Knob	46-1569	Tuning
	Knob	46-1301	Tone
	Knob	46-1319	Radio-Phono Switch
	Knob	46-1615	Dummy
	Cabinet	14-2029G	

CHASSIS—BOTTOM VIEW



ZENITH
MODEL 2550G (Ch. 5Z08)



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12BE6	10K	.8Ω	25Ω	37Ω	†1000Ω	†1000Ω	2.5Meg
V2	12BA6	7.5Meg	0Ω	0Ω	12Ω	†1000Ω	†1000Ω	120Ω
V3	12AT6	4.7Meg	0Ω	25Ω	12Ω	500K	500K	†470K
V4	50C5	150Ω	470K	85Ω	37Ω	470K	†1000Ω	†230Ω
V5	35W4	TP	TP	85Ω	120Ω	120Ω	110Ω	50K

ALL MEASUREMENTS TAKEN IN "RADIO" POSITION.
† MEASURED FROM PIN 7 OF V5.
TP TIE POINT

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured at 1000 ohms per volt.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common negative.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ± 15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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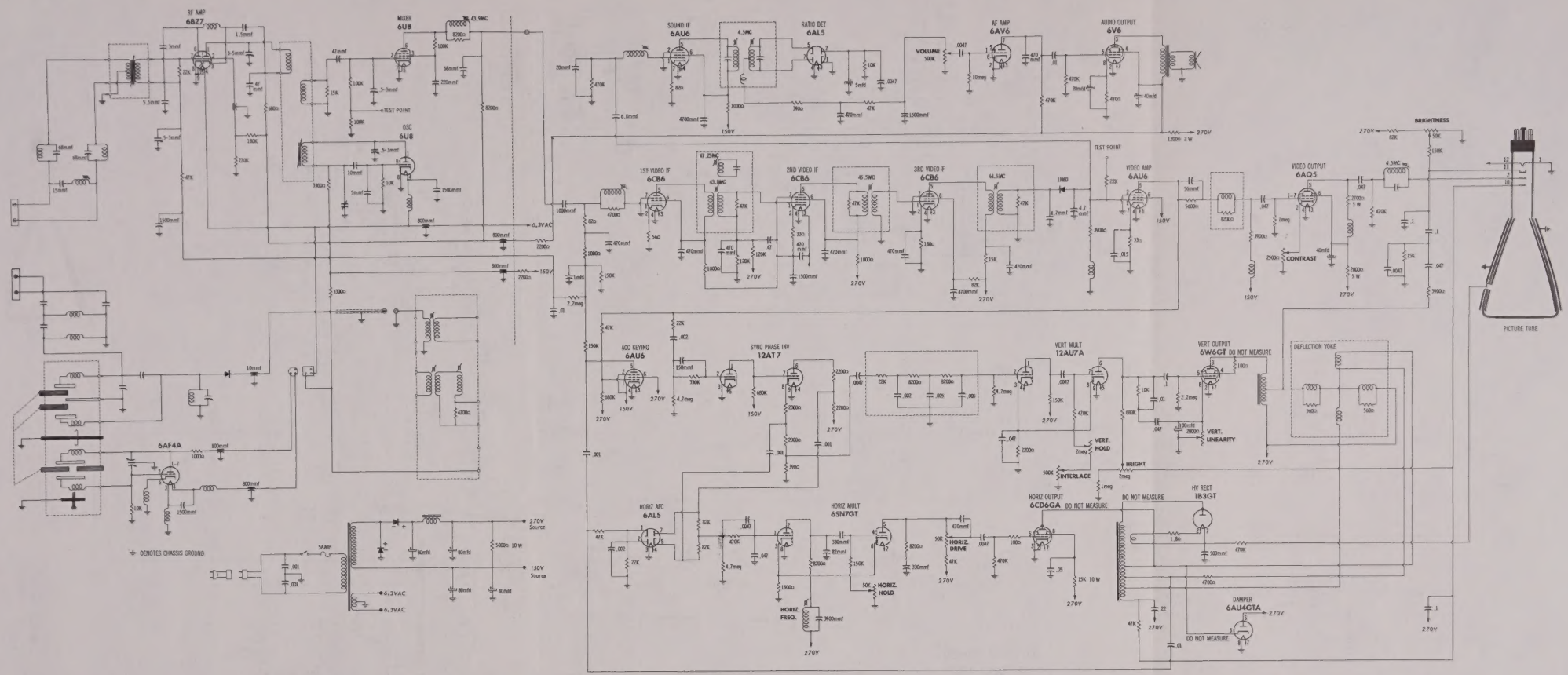

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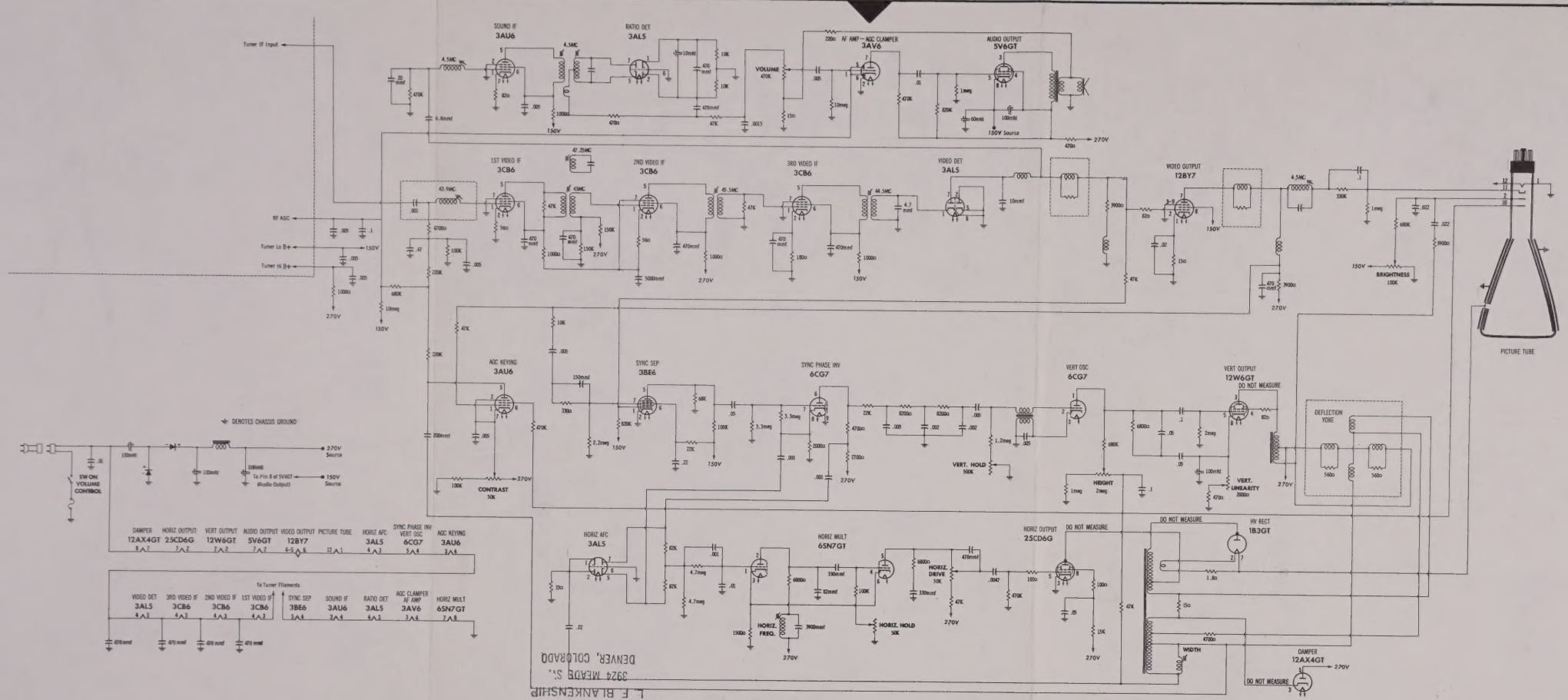
1956 (F-56)

AMERICAN TELEVISION



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SET 353 FOLDER 20-S